Identidades Polinomiais em Álgebras de Bernstein

Ivan Alejandro Correa Sierra

Tese apresentada
ao
Instituto de Matemática e Estatística
da
Universidade de São Paulo
para a obtenção do grau de Doutor
em
Matemática

Área de concentração: Álgebra
Orientador: Prof. Dr. Luiz Antonio Peresi

Durante a elaboração deste trabalho, o autor recebeu apoio financeiro do CNPq.

São Paulo, Maio de 1993

A Nicolasito

RESUMO

Neste trabalho estudamos as álgebras de Bernstein que satisfazem uma identidade polinomial. No primeiro capítulo, damos uma caracterização de alguns tipos de álgebras de Bernstein e estudamos álgebras de Bernstein que satisfazem uma identidade de grau quatro que não é consequência da comutatividade. Finalmente damos uma caracterização das álgebras de Bernstein de ordem n que são álgebras de Jordan. No segundo capítulo, construimos as identidades minimais para as álgebras de Bernstein nos casos normal, excepcional, nuclear e arbitrário. Usamos a técnica de processar identidades via representações do grupo simétrico. Finalmente, no terceiro capítulo, estudamos as álgebras comutativas que satisfazem uma das duas identidades de grau seis que foram obtidas no capítulo dois.

ABSTRACT

In this work we study Bernstein algebras that satisfy an identity. In the first chapter we give a characterization of some types of Bernstein algebras and study Bernstein algebras that satisfy an identity of degree four that is not consequence of the commutativity. Finally we give a characterization of nth-order Bernstein algebras that are Jordan algebras. In the second chapter, we construct the minimal identities for Bernstein algebras in the normal, exceptional, nuclear and arbitrary case. We use the technique of processing identities via the representations of the symmetric group. Finally, in the third chapter, we study the commutative algebras satisfying one of the two identities of degree six that were found in the second chapter.

ÍNDICE

INTRODUÇÃO

Em 1923 Bernstein [B-1] propôs o problema da descrição explicita de todos os operadores evolução que atingem o equilíbrio na segunda geração. Este problema foi parcialmente resolvido por Lyubich [L-1, 2, 3]. Em 1975 Holgate em [H-8] forneceu uma formulação algébrica para o problema de Bernstein introduzindo o conceito de álgebra de Bernstein. O estudo e classificação destas álgebras tem-se mostrado um problema difícil. Apenas classificações parciais de alguns tipos de álgebras de Bernstein tem sido obtidas (ver por exemplo Holgate [H-2], Lyubich [L-3], Costa [C-9], Hentzel-Peresi [H-5]).

Na área das álgebras não-associativas o estudo das identidades tem-se mostrado uma importante ferramenta de trabalho. Nos artigos [O-2, 3, 4] de 1965-68, Osborn estudou as álgebras comutativas com elemento unidade que satisfazem alguma identidade de grau ≤ 4 que não é consequência da lei comutativa. Hentzel-Piacentini Cattaneo-Carini [H-6], usando uma técnica dada por Hentzel em [H-1], estenderam o resultado de Osborn encontrando todas as identidades que não são consequência da comutatividade em uma álgebra que não tem necessariamente unidade. Quando as álgebras tem unidade, estas identidades ficam reduzidas a lei associativa ou as identidades obtidas por Osborn.

Este trabalho está dividido em quatro capítulos, o primeiro dos

quais (capítulo 0) contém elementos básicos que serão utilizados nos capítulos seguintes.

No capítulo I estudamos as identidades que são satisfeitas por alguns tipos de álgebras de Bernstein. No teorema 3 damos a classificação salvo isomorfismo das álgebras de Bernstein reais de dimensão 5 que também são álgebras de Jordan. Damos caracterizações para os casos normal e excepcional (teoremas 6 e 7). Usando o resultado de Hentzel-Piacentini Cattaneo-Carini (teorema 10) caracterizamos as álgebras de Bernstein que satisfazem uma identidade de grau ≤ 4 que não é consequência da lei comutativa (teorema 15). Finalmente damos uma generalização de um teorema de Walcher (teorema 2) que caracteriza aquelas álgebras de Bernstein de ordem n que são associativas nas potências (teorema 16).

Toda álgebra de Bernstein satisfaz a identidade de grau sete $(x^2x^2, y, x^2) = 0$. Assim, um problema natural é encontrar as identidades minimais, isto é, as identidades de menor grau, satisfeitas pelas álgebras de Bernstein. No capítulo II encontramos as identidades minimais satisfeitas por uma álgebra de Bernstein nos casos normal, excepcional e nuclear, e finalmente encontramos as identidades minimais satisfeitas por uma álgebra de Bernstein arbitrária (teoremas 5-8). Para este fim, utilizamos a técnica para processar identidades introduzida por Hentzel no artigo [H-1].

No Capítulo III estudamos as álgebras comutativas que satisfazem alguma das duas identidades minimais satisfeitas pelas álgebras de Bernstein (teoremas 5 e 11) e encontramos as condições necessárias

e suficientes para que uma álgebra satisfazendo uma destas identidades seja de Bernstein (teoremas 8 e 12).

Agradeço ao professor Luiz Antonio Peresi, que orientou este trabalho com muita dedicação. Agradeço também pela sua paciência e amizade. Agradeço ao professor Roberto Costa pelos seminários e sugestões que me foram muito úteis e ao professor Irvin Roy Hentzel (da Iowa State University) pela grande ajuda que me deu com seus programas computacionais. Finalmente, agradeço a minha companheira Cecilia por seu apoio e a meus grandes amigos Pilar, Juan, João e Hugo.

NOTAÇÃO

Usaremos a palavra álgebra para indicar uma álgebra não-associativa e comutativa. A menos de indicação explícita, vamos supor sempre as álgebras sobre corpos com característica diferente de dois no capítulo I e igual a zero nos capítulos II e III.

Escreveremos o produto de três elementos $(ab)c$ como $ab \cdot c$ e denotaremos por (a, b, c) (operador associação) a expressão $ab \cdot c - a \cdot bc$.

Alguns símbolos utilizados são:

$\delta_x^k(y)$ é o operador linearização.

L_a é o operador multiplicação à esquerda por a.

$\tilde{T}_i$ é a função que leva uma n-upla de elementos na multiplicação deles associados de maneira T_i.

f_π denota uma identidade baseada na função f com os argumentos ordenados segundo a permutação π.

$x^{[n]}$ denota a n-ésima potência plena de um elemento x definida por $x^{[1]} = x$ e $x^{[n]} = x^{[n-1]}x^{[n-1]}$ para $n > 1$.

x^n denota a n-ésima potência principal de um elemento x definida por $x^1 = x$ e $x^n = x^{n-1}x$ para $n > 1$.

CAPÍTULO 0

PRELIMINARES

1. Identidades

Sejam A uma álgebra sobre um corpo F, S_n o grupo simétrico sobre n elementos e $\pi \in S_n$ uma permutação. Se $(a_1, a_2, ..., a_n) \in \prod_{i=1}^{n} A$ denotaremos por $(a_1, a_2, ..., a_n)_\pi$ a $n-$upla obtida ao permutarmos as posições dos argumentos a_i segundo π. Por exemplo, se $\pi = (123)$ então $(a_1, a_2, a_3)_\pi = (a_3, a_1, a_2)$. Observamos que $(a_1, a_2, a_3)_\pi \neq (a_{\pi(1)}, a_{\pi(2)}, a_{\pi(3)}) = (a_2, a_3, a_1)$.

Dada uma função $f : \prod_{i=1}^{n} A \to A$ definimos a função

$$f_\pi : \prod_{i=1}^{n} A \to A$$

como $f_\pi(a_1, a_2, ..., a_n) = f(a_1, a_2, ..., a_n)_\pi$. Uma *identidade em A baseada em f* é uma soma

$$\sum_{\pi \in S_n} \alpha_\pi f_\pi,$$

onde os α_i são escalares em F e

$$\sum_{\pi \in S_n} \alpha_\pi f_\pi(a_1, a_2, ..., a_n) = 0$$

para todo $(a_1, a_2, ..., a_n) \in \prod_{i=1}^{n} A$.

Observamos que existe uma correspondência natural entre as identidades em A baseadas em f e os elementos da álgebra de grupo FS_n. O elemento

$$\phi = \sum_{\pi \in S_n} \alpha_\pi \pi$$

de FS_n é dito uma *identidade de A baseada na função f* se

$$f_\phi = \sum_{\pi \in S_n} \alpha_\pi f_\pi$$

é uma identidade em A. Este conceito pode ser generalizado a identidades que envolvem mais de uma função. Consideremos as funções

$$f_i : \prod_{i=1}^{n} A \to A, \quad (1 \leq i \leq r).$$

Um elemento $\phi = (\phi_1, \phi_2, ..., \phi_n) \in \prod_{i=1}^{r} FS_n$ é dito uma *identidade de A baseada em* $f_1, f_2, ..., f_r$ se $\sum_{i=1}^{r} (f_i)_{\phi_i}$ é uma identidade em A.

Observamos que $\prod_{i=1}^{r} FS_n$ é um FS_n-módulo à esquerda, e o conjunto de todas as identidades baseadas em $f_1, f_2, ..., f_r$ é um FS_n-submódulo. Uma identidade ϕ é consequência das identidades $\phi_1, \phi_2, ..., \phi_s$ se e somente se ϕ pertence ao submódulo gerado por $\phi_1, \phi_2, ..., \phi_s$.

Um tipo importante de identidades são as chamadas *identidades polinomiais*. Seja $F[X]$ a álgebra livre não-associativa sobre F dos polinômios nas indeterminadas do conjunto enumerável $X = \{x_1, x_2, x_3, ...\}$. Um polinômio de grau l $f(x_1, ..., x_n) \in F[X]$

é dito uma *identidade de grau l de A* se $f(a_1, a_2, ..., a_n) = 0$ para toda n-upla $(a_1, a_2, ..., a_n) \in \prod_{i=1}^{n} A$.

Seja $f(x_1, x_2, ..., x_n)$ um polinômio homogêneo de grau n, isto é, o grau da cada indeterminada x_i em cada um dos monômios que compõem o polinômio é um. Existem $c = \frac{1}{n}\binom{2n-2}{n-1}$ maneiras diferentes T_i de associar o produto das n indeterminadas $x_1, x_2, ..., x_n$. Assim podemos escrever o polinômio como

$$f(x_1, ..., x_n) = \sum_{i=1}^{c} \sum_{\pi \in S_n} \alpha_\pi^i \tilde{T}_i(x_1, x_2, ..., x_n)_\pi,$$

onde as $\tilde{T}_i$ são funções que levam a n-upla $(x_1, x_2, ..., x_n)$ no produto $x_1 x_2 ... x_n$ associado de maneira T_i.

Seja Γ um subconjunto de $F[X]$. A família de todas as álgebras sobre F, para as quais cada elemento de Γ é uma identidade, é dita a *variedade de álgebras determinada por* Γ.

2. Linearização

O processo de linearização é uma das ferramentas mais importantes no estudo das identidades em uma álgebra. Seja $f(x_1, ..., x_n)$ uma identidade e seja y uma indeterminada diferente das x_i. Se substituimos x_i por $x_i + y$, obtemos que

$$f(x_1, ..., x_i + y, ..., x_n) = \sum_{k \geq 0} f_{ik}(x_1, ..., x_i, ..., x_n, y),$$

onde f_{ik} é a soma de todos os termos que tem grau k na indeterminada y. Definimos o operador $\delta_i^k(y)$ agindo sobre a identidade

f como

$$f(x_1, ..., x_i, ..., x_n)\delta_i^k(y) = f_{ik}(x_1, ..., x_i, ..., x_n, y).$$

Observamos que $\delta_i^0 = I$. Se $k > 0$, o operador δ_i^k age substituindo cada monômio pela soma dos monômios que podem ser obtidos dele substituindo k dos x_i por y. Observamos, além disto, que este operador satisfaz

$$(\alpha f + \beta g)\delta_i^k(y) = \alpha[f\delta_i^k(y)] + \beta[g\delta_i^k(y)],$$

para todo par de identidades f, g e $\alpha, \beta \in F$.

Se f é uma identidade, y é uma indeterminada diferente de $x_1, x_2, ..., x_n$, $k \geq 1$, e o grau de $x_i \geq k$ em pelo menos um monômio de f, então $f(x_1, x_2, ..., x_n)\delta_i^k(y)$ é dita uma *linearização simples de f*. Uma identidade que pode ser obtida de f como uma sequência de uma ou mais linearizações simples de f é dita uma *linearização* de f. Uma linearização na qual em cada monômio não aparecem variáveis com grau > 1 é denominada uma *linearização completa*.

A propriedade mais importante do processo de linearização é que dada uma identidade, cada linearização dela é uma nova identidade.

Quando fazemos linearizações estamos sempre assumindo que o corpo tem um número suficiente de elementos.

Referência: [O-4].

CAPÍTULO I

IDENTIDADES

EM ÁLGEBRAS DE BERNSTEIN

1. Álgebras de Bernstein

Uma *álgebra ponderada* é um par (A, w), onde A é uma álgebra sobre um corpo F e $w : A \to F$ é um homomorfismo não-nulo de álgebras.

Uma *álgebra de Bernstein* é uma álgebra ponderada que satisfaz a identidade

$$x^2x^2 = w(x)^2x^2. \tag{1}$$

Seja (A, w) uma álgebra de Bernstein. Todo elemento de A da forma $w(x)^{-2}x^2$ com $w(x) \neq 0$ é um elemento idempotente em A.

Seja $e \in A$ um elemento idempotente e seja $N = Ker(w)$. Então $A = Fe \oplus N$.

O homomorfismo w é único. De fato, se w' é um outro homomorfismo não-nulo de A em F e $y \in Ker(w)$, então

$$w'(y)^4 = w'(y^2y^2) = w'(w(y)^2y^2) = 0.$$

Assim $w'(y) = 0$ e $y \in Ker(w')$, de onde $Ker(w) \subset Ker(w')$. Como w' é não nulo , necessariamente $w'(e) = 1$ e então $w' = w$. Assumindo este fato, no que segue escreveremos simplesmente A para indicarmos uma álgebra de Bernstein.

Seja $L_e : N \to N$ o operador definido por $x \mapsto ex$ (multiplicação à esquerda por e). Então L_e satisfaz

$$L_e(2L_e - I) = 0$$

e logo temos que $N = U \oplus Z$, onde $U = Ker(2L_e - I)$ e $Z = Ker(L_e)$. Obtemos assim a decomposição de Peirce de A

$$A = Fe \oplus U \oplus Z. \tag{2}$$

Se I denota o conjunto dos elementos idempotentes em A, então

$$I = \{e + u + u^2 : u \in U\}.$$

Sejam $f = e + u_o + u_o^2 \in I$, U_f e Z_f os subespaços de A na decomposição (2) correspondentes ao idempotente f. Então

$$U_f = \{u + 2uu_0 : u \in U\},\ Z_f = \{-2(zu_0 + zu_0^2) + z : z \in Z\} \quad (3).$$

As dimensões dos espaços U e Z são invariantes da álgebra. O par $(dim\ U + 1, dim\ Z)$ é dito o *tipo da álgebra*. Lyubich [L-6, 7]

classificou as álgebras de Bernstein de dimensão arbitrária n sobre o corpo dos números complexos de tipos $(n,0)$, $(n-1,1)$, $(1,n-1)$ e $(2,n-2)$ e as de tipo $(3,n-3)$ tais que $U^2 \neq 0$. Observamos que de (3) é facil ver que $U^2 = 0$ independe da escolha do idempotente. Um outro invariante conhecido é $dim(UZ \oplus Z^2)$.

O teorema a seguir caracteriza as álgebras ponderadas que são de Bernstein.

Teorema 1 (Lyubich [L-1]). Seja (A,w) uma álgebra ponderada. Suponhamos que $A = Fe \oplus U \oplus Z$, onde e é um idempotente e $Ker(w) = U \oplus Z$. Então, (A,w) é uma álgebra de Bernstein se e somente se, para todo $u \in U$, $z \in Z$ e $y \in Ker(w)$, temos que:

$a)\ ez = 0$	$f)\ uz^2 = 0$
$b)\ eu = \frac{1}{2}u$	$g)\ u^2 \cdot uz = 0$
$c)\ y^2y^2 = 0$	$h)\ uz \cdot z^2 = 0$
$d)\ u^3 = 0$	$i)\ (uz)^2 = 0$
$e)\ uz \cdot u = 0$	$j)\ u^2z^2 = 0$

e os subespaços U e Z satisfazem as relações

$$U^2 \subset Z, \quad Z^2 \subset U, \quad UZ \subset U. \tag{4}$$

Vamos terminar esta seção com algumas identidades que serão usadas nos cálculos que seguem.

Linearizando a identidade (1) obtemos

$$2x^2 \cdot xy - w(xy)x^2 - w(x)^2xy = 0 \tag{5}$$

e

$$4xy \cdot xz + 2x^2 \cdot yz - w(yz)x^2 - 2w(xy)xz$$
$$-2w(xz)xy - w(x)^2yz = 0. \tag{6}$$

Fazendo $y = x^3$ e $y = x^2$ em (5) obtemos respectivamente

$$2x^2x^4 = w(x)^4x^2 + w(x)^2x^4 \tag{7}$$

e

$$2x^2x^3 = w(x)^3x^2 + w(x)^2x^3. \tag{8}$$

Referências: [B-1], [H-8], [L-1, 2, 3, 4, 5, 6, 7], [W-1, 2].

2. A propriedade de Jordan

Uma álgebra A é dita uma *álgebra de Jordan* se ela satisfaz a identidade

$$x^2y \cdot x = x^2 \cdot yx \quad (\forall x, y \in A).$$

Dizemos que uma álgebra não-associativa A é uma *álgebra com potência quarta associativa* quando verifica $x^2x^2 = x^3x$ para todo $x \in A$.

Em Walcher [W-1] encontramos a seguinte caracterização das álgebras de Bernstein que são de Jordan.

Teorema 2 (Walcher [W-1]). Seja (A, w) uma álgebra ponderada e de dimensão finita sobre um corpo de característica $\neq 2, 3$. Então são equivalentes as seguintes afirmações:

a) A é uma álgebra de Bernstein-Jordan.

b) A é uma álgebra de Bernstein com potência quarta associativa.

c) A satisfaz a identidade

$$x^3 - w(x)x^2 = 0. \tag{9}$$

Também é conhecido o fato de que uma álgebra de Bernstein é de Jordan se e somente se $Z^2 = 0$ e $uz \cdot z = 0$ ($\forall u \in U$, $z \in Z$) ([A-2]). Esta última caracterização resulta também como consequência do teorema 1 do capítulo III.

Usando um teorema de Gerstenhaber-Myung [G-1] vamos classificar todas as álgebras de Bernstein-Jordan reais que tem dimensão 5. Esta classificação foi essencialmente obtida por Costa em [C-4, 5] por outro método.

Teorema 3. Existem 20 álgebras de Bernstein-Jordan de dimensão 5 não isomorfas sobre o corpo dos números reais. As tábuas de multiplicação são as seguintes:

I. $N^2 = 0$, $N =< u_i,\ z_j >$, tipo: $(1+n, 4-n)$.

$e^2 = e$, $eu_i = \frac{1}{2}u_i$, onde $n \in \{0,1,2,3,4\}$ e $1 \leq i \leq n$ quando $n \geq 1$.

II. $dim(N^2) = 1$, $N =< u_i, z_j >$, $N^2 = \mathbf{R}c$.

II.1 $e^2 = e$, $eu_i = \frac{1}{2}u_i, u_i^2 = \alpha_i c\ (i = 1,2,3)$.
onde $c \in Z$ e $(\alpha_1, \alpha_2, \alpha_3)$ é um elemento do conjunto:

$$\{(1,0,0),\ (1,1,0),\ (1,-1,0),\ (1,1,1),\ (1,1,-1)\}.$$

II.2. $e^2 = e$, $eu_i = \frac{1}{2}u_i$, $u_i^2 = \alpha_i c$ $(i = 1,2)$,
onde $c \in Z$ e $(\alpha_1, \alpha_2) \in \{(1,0),\ (1,1),\ (1,-1)\}$.

II.3. $e^2 = e$, $eu_1 = \frac{1}{2}u_1$, $u_1^2 = c$.

II.4. $e^2 = e$, $eu_i = \frac{1}{2}u_i$, $(i = 1,2,3)$, $u_1 z_1 = u_3$.

II.5. $e^2 = e$, $eu_i = \frac{1}{2}u_i$, $(i = 1,2)$, $u_1 z_1 = u_2$.

III. $dim(N^2) = 2$, $N =< x, y, x^2, xy >$.

III.1. $e^2 = e$, $ex = \frac{1}{2}x$, $e \cdot xy = \frac{1}{2}xy$, $x \cdot x = x^2$, $x \cdot y = xy$.

III.2. $e^2 = e$, $ex = \frac{1}{2}x$, $ey = \frac{1}{2}y$, $x \cdot x = x^2$, $x \cdot y = xy$,
$y^2 = \lambda x^2$ onde $\lambda \in \{0, 1, -1\}$.

Prova. Consideremos uma álgebra de Bernstein-Jordan A de dimensão cinco sobre um corpo arbitrário K. Então pelo teorema 2 temos que $N = Ker(w)$ é uma álgebra com potência quarta associativa de dimensão quatro que satisfaz a identidade $x^3 = 0$.

Se $N^2 = 0$ então existem 5 álgebras não isomorfas, uma para cada tipo. As tábuas de multiplicação são dadas pela tábua I.

Se $N^2 \neq 0$ então de Gerstenhaber-Myung [G-1] N é uma álgebra associativa, nilpotente de índice três, com dim(N^2)=1 ou 2.

As álgebras de Bernstein-Jordan de dimensão arbitrária que satisfazem a condição $dim(N^2) = 1$ foram classificadas por Hentzel-Peresi em [H-5]. Neste caso, se a dimensão é 5, existem 11 álgebras não isomorfas e as tábuas de multiplicação são as dadas pela tábua II.

Suponhamos então $dim(N^2) = 2$. Separamos este caso em duas partes:

Se existem $x \in U$ e $y \in Z$ tais que $x^2 \neq 0$ e $xy \neq 0$ então de (4) segue que $x^2 \in Z$ e $xy \in U$. Assim $\{x^2, xy\}$ é uma base de N^2. Se $\alpha x + \beta y \in N^2$ então $\alpha x^2 + \beta xy \in N^3 = 0$ e, como x^2 e xy são linearmente independentes, temos que $\alpha = \beta = 0$. Logo x e y são linearmente independentes módulo N^2. Então se $\alpha x + \beta y + \gamma xy + \delta x^2 = 0$ temos que $\alpha x + \beta y \in N^2$ e $\alpha = \beta = 0$. Como $\{x^2, xy\}$ é linearmente independente, temos que $\gamma = \delta = 0$ e assim $\{x, y, xy, x^2\}$ é base de N. Como A é de Jordan temos que $Z^2 = 0$, de onde $y^2 = 0$. A tábua de multiplicação neste caso está em III.1.

Vejamos agora a parte complementar, isto é , suponhamos que $uZ = 0$ para todo $u \in U$ tal que $u^2 \neq 0$, e que se existe $z \in Z$ tal que $uz \neq 0$ então $u^2 = 0$. Temos três casos possíveis, a saber:

1. $U^2 = 0$.

Se $U^2 = 0$ então $N^2 = UZ$ e, como $dim(N^2) = 2$, existem

$u_1,\ u_2 \in U$ e $z_1,\ z_2 \in Z$ tais que o conjunto $\{u_1z_1,\ u_2z_2\}$ é uma base de N^2. Se z_1 e z_2 são linearmente independentes então $dim(Z) \geq 2$. Suponhamos que $u_1 = \alpha u_1z_1 + \beta u_2z_2$. Então

$$u_1z_1 = \alpha u_1z_1 \cdot z_1 + u_2z_2 \cdot z_1 = 0,$$

o que é absurdo. Logo u_1, u_1z_1, u_2z_2 são linearmente independentes e $dim(U) \geq 3$. Neste caso $dim(N) \geq 5$, o que também é absurdo.

Se $z_1 = \alpha z_2$ então u_1, u_2, u_1z_1, u_2z_1 são linearmente independentes. Com efeito, se

$$\alpha u_1 + \beta u_2 + \gamma u_1z_1 + \delta u_2z_1 = 0$$

então

$$\alpha u_1z_1 + \beta u_2z_1 = 0,$$

de onde $\alpha = \beta = 0$. Assim $dim(U) \geq 4$ e $Z = 0$ o que é absurdo. Então o caso $U^2 = 0$ não pode acontecer.

2. $UZ = 0$.

Suponhamos agora que $UZ = 0$. Como $Z^2 = 0$ temos que $N^2 = U^2$. Sejam $x_1, y_1 \in N$ tais que $y_1^2 = \lambda x_1^2$ $(\lambda \in K)$ e $\{x_1, y_1, x_1^2, x_1y_1\}$ é uma base de N (ver Gerstenhaber-Myung [G-1]).

Como $N = U \oplus Z$ existem $x, y \in U$ e $z, z' \in Z$ tais que $x_1 = x + z$ e $y_1 = y + z'$. Como $UZ = 0$ e $Z^2 = 0$, temos que $x^2 = x_1^2$, $xy = x_1y_1$ e $y^2 = \lambda x^2$. Logo $\{x^2, xy\}$ é uma base de N^2. Como $\{x, y\}$ é linearmente independente módulo N^2, obtemos que $\{x, y, x^2, xy\}$ é uma base de N. A tábua de multiplicação é dada por:

$e^2 = e, \quad ex = \frac{1}{2}x, \quad ey = \frac{1}{2}y, \quad x \cdot x = x^2, \quad x \cdot y = xy, \quad y^2 = \lambda y^2.$

Outra escolha do par (x_1, y_1) troca a constante λ por $\lambda\alpha^2$, onde $\alpha \in K$ e $\alpha \neq 0$ (Gerstenhaber-Myung [G-1]). Assim neste caso as álgebras de Bernstein-Jordan estão parametrizadas por 0 e os elementos do quociente $K^*/(K^*)^2$, onde K^* representa o grupo multiplicativo do corpo K. Em particular, se $K = R$, o corpo dos números reais, então os valores de λ são 0, 1 e -1. Obtemos assim a tábua de multiplicação III.2.

3. $U^2 \neq 0$, $UZ \neq 0$.

Assumamos agora que $U^2 \neq 0$ e $UZ \neq 0$. Existem então $u_1, u_2 \in U$ e $z_2 \in Z$ tais que $u_1^2 \neq 0$ e $u_2 z_2 \neq 0$. Se $u_1^2 \neq -2u_1u_2$ fazemos $x = u_1 + u_2$ e $y = z_2$. Se $u_1^2 = -2u_1u_2$ fazemos $x = u_1 + 2u_2$ e $y = z_2$. Em qualquer caso $x^2 \in U^2 \subset Z$. Segue que $\{x^2, xy\}$ é uma base de N^2 e assim $\{x, y, x^2, xy\}$ é uma base de N . A tábua de multiplicação é dada pela tábua III.1.

Observamos agora que uma álgebra com tábua de multiplicação III.1 não pode ser isomorfa a uma álgebra com tábua de multiplicação III.2. Se $\lambda \neq 0$ isto é claro. Assumamos então que $\lambda = 0$. Seja e' um outro elemento idempotente da álgebra III.2, e seja $N = U' \oplus Z'$ a correspondente decomposição de N . Seja $u_1 \in U$ tal que $e' = e + u_1 + u_1^2$. Então, como $U' = \{u + 2u_1u : u \in U\}$, $Z' = \{-2(u_1z + u_1^2z) + z : z \in Z\}$ e $UZ = Z^2 = 0$, temos que $Z' = Z$. Segue que $U'Z' = U'Z \subset (U + Z)Z = 0$. Assim, a propriedade $UZ = 0$ independe da escolha do idempotente. A

álgebra dada pela tábua III.2 não pode ser isomorfa à álgebra com tábua III.1, porque esta álgebra tem subespaços com $UZ \neq 0$, concluindo-se com isto a prova do teorema.

Referências: [A-2], [C-4, 5], [G-1], [H-5], [W-1], [Z].

3. Nilpotência do núcleo

Uma álgebra não-associativa A é denominada *nilpotente* se existe um inteiro $n \geq 0$ tal que o produto de quaisquer n elementos de A, com qualquer distribuição de parênteses, é igual a zero.

Uma álgebra não-associativa A é denominada *solúvel* se existe um inteiro $n > 0$ tal que $A^{(n)} = 0$, onde as potências plenas de A são definidas por $A^{(0)} = A$, $A^{(l+1)} = A^{(l)}A^{(l)}$.

Uma álgebra é chamada *associativa nas potências* se toda subálgebra gerada por um único elemento é associativa.

Seja A uma álgebra associativa nas potências. Um elemento $x \in A$ é denominado *nilpotente* se existe um inteiro $n > 0$ tal que $x^n = 0$. A álgebra A é denominada *nilálgebra* se todo elemento de A é nilpotente.

Uma álgebra ponderada (A, w) é chamada *t-álgebra especial* se $N = Ker(w)$ é nilpotente e as potências principais $N^k, k = 1, 2, \ldots$ são ideais da álgebra (ver Worz-Busekros [W-2, p.55]). As potências principais N^k são definidas por $N^1 = N$, $N^{l+1} = N^l N$.

Se $A = Ke \oplus N$ é uma álgebra de Bernstein, então as potências $N^k, k = 1, 2, \ldots$ são ideais. Assim, A é uma t-álgebra especial se e somente se N é nilpotente (ver Walcher [W-1]). A é dita uma *álgebra de Bernstein nuclear* se satisfaz a condição $A^2 = A$. Grishkov [G-2] e Odoni-Stratton [O-1] provaram que se A é nuclear de dimensão finita então N é nilpotente. Este resultado foi melhorado por Peresi [P-2], trocando a hipótese dimensão finita por finitamente gerada. Se A é uma álgebra de Bernstein-Jordan, então do teorema 2 temos que N é nilálgebra de índice 3. Uma nilálgebra de Jordan de índice finito e dimensão finita é nilpotente [Z, p.22]. Usando a mesma argumentação que aparece em [P-2], é possível substituir neste caso a hipótese dimensão finita por finitamente gerada.

Proposição 4. Se $A = Ke \oplus N$ é uma álgebra de Bernstein-Jordan finitamente gerada, então N é nilpotente.

Prova. Seja E a álgebra associativa dos endomorfismos de N. Definindo em E a operação $*$ dada por $f * g = fg + gf$ (onde fg é a composição das funções f e g), obtemos a álgebra de Jordan E^+ associada a E. Do teorema 2 temos que $x^3 = 0$ para todo $x \in N$ e então $[x^3]\delta_x^1(y)\delta_x^1(z) = 0$, isto é

$$-xy \cdot z = y \cdot xz + x \cdot yz$$

para todo $x, y, z \in N$. Disto segue que, se L_x denota o operador

multiplicação à esquerda por um elemento $x \in N$, então

$$L_{xy} = (-L_x)(-L_y) + (-L_y)(-L_x) = L_x * L_y.$$

Logo, a aplicação $x \in N \mapsto L_x \in E$ é um homomorfismo. O núcleo deste homomorfismo é o conjunto $An(N) = \{n \in N : nN = 0\}$, chamado o *anulador de* N. Assim temos que $N/An(N)$ é isomorfo a uma subálgebra de E^+. Além disso $N/An(N)$ é finitamente gerado e nil de índice 3. Nestas condições $N/An(N)$ é nilpotente (ver Zevlakov [Z, p.114]). Existe então um inteiro r tal que $(N/An(N))^r = 0$. Logo $N^r \subset An(N)$ e temos $N^{r+1} \subset An(N)N = 0$. Portanto N é nilpotente.

A seguir vamos construir duas álgebras, a primeira das quais mostra a necessidade da hipótese finitamente gerada. A construção é feita a partir de um exemplo dado por Zhevlakov de uma álgebra N que é nil de índice 3 e satisfaz $N^2N^2 = 0$ mas não é nilpotente ([Z, p.82]).

Exemplo 1. Consideremos o conjunto enumerável de indeterminadas $X = \{x_1, x_2, ..., x_m, ...\}$. Definimos uma *palavra regular* como uma expressão formal do tipo

$$u = x_{i_1} x_{i_2} ... x_{i_s},$$

onde $s \geq 1$ e $i_1 < i_2 < ... < i_s$. Sejam P o conjunto das palavras regulares e N o espaço vetorial gerado por P sobre um corpo K de característica $\neq 2, 3$. Para definir uma multiplicação comutativa

em N consideramos x_i, x_j em X e u, v em P e fazemos:

1. $x_i * x_j = x_i x_j$ para $i < j$.

2. $u * v = 0$ se ambas u e v tem pelo menos duas letras.

3. $u * x_i = 0$ se $s \geq 2$ e $i < i_1$ ou x_i aparece em u.

4. $u * x_i = (-1)^\sigma x_{i_1} x_{i_2} ... x_i ... x_{i_s}$ se $s \geq 2$ e $i > i_1$,

onde σ é a permutação nos subíndices que faz com que ux_i seja uma palavra regular.

A álgebra N tem dimensão infinita, satisfaz a identidade de Jacobi

$$(u * v) * w + (v * w) * u + (w * u) * v = 0$$

e a condição $N^2 N^2 = 0$. Mas não é nilpotente, pois para todo $n \geq 1$ temos

$$(...((x_1 * x_2) * x_3) * ...) * x_n = x_1 x_2 ... x_n \neq 0.$$

Construimos duas álgebras de Bernstein não isomorfas a partir desta álgebra N. Para fazê-lo introduzimos uma nova letra e que será um elemento idempotente da álgebra. Seja Ke o espaço vetorial gerado por e sobre K e consideremos o conjunto $A = Ke \oplus N$. Decompomos N como a soma direta de espaços vetoriais $N = U \oplus Z$ e estendemos a multiplicação $*$ ao conjunto A pondo

$$e * e = e, \quad e * u = \frac{1}{2} u \ (\forall u \in U), \quad e * z = 0 \ (\forall z \in Z).$$

Fazemos a decomposição $N = U \oplus Z$ definindo U e Z de duas maneiras:

1. $U =< \{u \in P : u$ tem comprimento ímpar $\} >_K$,

$Z =< \{u \in P : u$ tem comprimento par $\} >_K$.

2. $U =< \{u \in P : u$ tem comprimento $\geq 2\} >_K$, $Z =< X >_K$.

Se definimos em ambos os casos o operador $w : A \to K$ fazendo $w(\lambda e + n) = \lambda$ obtemos que w é um homomorfismo de álgebras.

Vamos indicar a multiplicação em A usando simplesmente justaposição.

Por construção é claro que U e Z satisfazem as relações (4). Sejam $y \in N$, $u \in U$ e $z \in Z$. Como $N^2N^2 = 0$ temos

$$y^2y^2 = 0,\ u^2 \cdot uz = 0,\ uz \cdot z^2 = 0,\ (uz)^2 = 0,\ u^2z^2 = 0.$$

Para a primeira álgebra $Z^2 = 0$ e para a segunda $U^2 = 0$. Em qualquer caso segue então que

$$u^2z = 0,\ uz^2 = 0$$

por (4). Usando a identidade de Jacobi obtemos agora

$$u^3 = 0,\ uz \cdot u = -\frac{1}{2}u^2z = 0.$$

Portanto, todas as condições do teorema 1 estão preenchidas e podemos concluir que as álgebras construidas são de Bernstein.

A primeira álgebra é de Jordan (pois $Z^2 = 0$ e $uz \cdot z = -\frac{1}{2}uz^2 = 0$ para todo $u \in U$, $z \in Z$), não é finitamente gerada e o seu núcleo não é nilpotente.

Para a primeira álgebra temos $U^2 \neq 0$ e para a segunda $U^2 = 0$. Como foi observado na seção 1, o fato de que $U^2 = 0$ independe

da escolha do idempotente. Portanto, estas duas álgebras não são isomorfas.

Observação. Hentzel-Peresi [H-3] observaram que em geral o núcleo de uma álgebra de Bernstein não é nilpotente mas é sempre solúvel quando a álgebra é finitamente gerada. Recentemente Hentzel-Jacobs-Peresi-Sverchkov [H-7] mostraram que para qualquer álgebra de Bernstein o núcleo é solúvel de índice ≤ 5 e N^2 é nilpotente de índice ≤ 9.

Referências: [G-2], [H-3, 7], [O-1], [P-2], [Z].

4. Álgebras de Bernstein normais

Uma álgebra de Bernstein $A = Fe \oplus U \oplus Z$ é dita *normal* se satisfaz a identidade

$$x^2y = w(x)xy. \tag{10}$$

Esta condição é equivalente a ter $Z^2 = UZ = 0$ (ver por exemplo [W-2]).

Proposição 5. Seja A uma álgebra de Bernstein normal sobre um corpo de característica $\neq 2, 3$. Então A satisfaz as seguintes identidades:

$$x^3x = x^2x^2 \quad (\textit{potência quarta associativa}), \tag{11}$$

$$x^2y \cdot x = x^2 \cdot yx \quad (identidade\ de\ Jordan), \tag{12}$$

$$2(yx \cdot x)x + yx^3 - 3yx^2 \cdot x = 0 \quad (quase - Jordan\ ), \tag{13}$$

$$H(x,y) = 2(xy)^2 - x^2y \cdot y - y^2x \cdot x = 0, \tag{14}$$

$$P(x,y) = (xy)^2 - x^2y^2 + (xy \cdot x)y + (xy \cdot y)x - y^2x \cdot x - x^2y \cdot y = 0, \tag{15}$$

$$(x, yz, t) + (z, yt, x) + (t, xy, z) = 0. \tag{16}$$

Prova. Da hipótese temos que A satisfaz (10). Fazendo $x = y$ em (10) obtemos que A satisfaz (9) e então A satisfaz (12) pelo teorema 2. Fazendo $x = y$ em (12) obtemos (11). A identidade (13) é consequência de uma linearização de (12). Expandindo (16) podemos ver que esta identidade é uma consequência direta da forma linearizada da identidade (10). Provaremos (14) e (15) no próximo teorema.

Observação. Quando a característica do corpo é zero, as identidades (13), (14) e (16) geram (veja a seção 2 do capítulo II) todas as identidades de grau minimal satisfeitas por uma álgebra de Bernstein normal que não envolvem o homomorfismo w e que não são consequência da comutatividade. Provaremos este fato na seção 3 do capítulo II.

Teorema 6. Seja A uma álgebra de Bernstein sobre um corpo de característica $\neq 2, 3$. Então são equivalentes:

a) A é normal.

b) A satisfaz a identidade

$$x^2y^2 = w(xy)xy. \tag{17}$$

c) A satisfaz a identidade

$$(w(x)y + w(y)x)^2 = (2xy)^2. \tag{18}$$

d) A satisfaz a identidade (14).

e) A satisfaz a identidade (15).

Prova. a) $\Rightarrow$ b): Pela definição A satisfaz (10). Se fazemos $y = y^2$ em (10) obtemos $x^2y^2 = w(x)xy^2$. Como $xy^2 = w(y)xy$ obtemos então (17).

b) $\Leftrightarrow$c): Fazendo $z = y$ em (6) obtemos

$$4(xy)^2 + 2x^2y^2 - w(y)^2x^2 - 4w(xy)xy - w(x)^2y^2 = 0. \tag{19}$$

Desta identidade b) $\Leftrightarrow$c) é imediato.

b)$\Rightarrow$a): Fazemos $y = z \in Z$ e $x = e$ em (17) para obter que $Z^2 = 0$. Linearizando agora (17) em x obtemos

$$2xz \cdot y^2 = w(yz)xy + w(xy)yz.$$

Fazendo $x = u \in U$, $y = e$ e assumindo $z \in Z$ obtemos desta última identidade que $UZ = 0$. Assim temos que A é normal.

a)$\Rightarrow$ d): Linearizando a equação (9) temos

$$2x \cdot xy + x^2y - w(y)x^2 - 2w(x)xy = 0.$$

Agora trocamos x e y para obter

$$2y \cdot yx + y^2x - w(x)y^2 - 2w(y)xy = 0.$$

Fazemos agora $y = y^2$ na primeira e $x = x^2$ na segunda identidade e somamos as duas identidades para obter

$$2x \cdot xy^2 + 2y \cdot yx^2 - 2x^2y^2 = w(x)^2y^2 + w(y)^2x^2. \qquad (20)$$

De (17) e (19) temos

$$w(x)^2y^2 + w(y)^2x^2 = 4(xy)^2 - 2x^2y^2.$$

Desta identidade e (20) obtemos (14).

Pelo mesmo argumento usado em b)$\Rightarrow$a) podemos ver que d) e e) separadamente implicam $UZ = Z^2 = 0$. Assim, só falta provar que d)$\Rightarrow$ e).

Uma álgebra de Bernstein que é normal satisfaz a identidade (11). Linearizando esta identidade obtemos

$$G(x,y) = x \cdot xy^2 + 2x(y \cdot xy) + y \cdot x^2y + 2y(x \cdot xy) - 4(xy)^2 - 2x^2y^2 = 0.$$

Como $G = 2P - 3H$ temos finalmente que d)$\Leftrightarrow$ e).

Referências: [W-1], [W-2].

5. Álgebras de Bernstein excepcionais

Uma álgebra de Bernstein $A = Fe \oplus U \oplus Z$ é dita *excepcional* se satisfaz a condição $U^2 = 0$.

Temos a seguinte caracterização destas álgebras:

Teorema 7. Para uma álgebra de Bernstein A são equivalentes as seguintes afirmações:

a) A é excepcional.

b) A satisfaz a identidade

$$(xy)^2 - w(xy)xy = 0. \tag{21}$$

c) A satisfaz a identidade

$$y^2y^2 \cdot x^2z^2 = x^2y^2 \cdot y^2z^2. \tag{22}$$

d) A satisfaz a identidade

$$2xz \cdot yt = w(yt)xz + w(xz)yt. \tag{23}$$

Prova. a) $\Rightarrow$ b): Se $A = Ke \oplus U \oplus Z$ e $x = \alpha e + u_1 + z_1$, $y = \beta e + u_2 + z_2$ são elementos de A com $u_i \in U$ e $z_i \in Z$, temos que

$$xy = \alpha\beta e + \frac{\alpha}{2}u_2 + \frac{\beta}{2}u_1 + u_1z_2 + u_2z_1 + z_1z_2$$

e

$$(xy)^2 = (\alpha\beta)^2 e + \frac{\alpha^2\beta}{2}u_2 + \frac{\alpha\beta^2}{2}u_1 + \alpha\beta u_1z_2 + \alpha\beta u_2z_1 + \alpha\beta z_1z_2.$$

Disto obtemos que $w(xy)xy = \alpha\beta xy = (xy)^2$.

b)$\Rightarrow$ c): Como sabemos que A satisfaz (21) segue de (19) que

$$2x^2y^2 = w(y)^2x^2 + w(x)^2y^2 \quad (\forall x, y \in A). \tag{24}$$

Por outro lado, linearizando a identidade (21) em x obtemos

$$w(zy)xy + w(xy)zy = 2xy \cdot zy.$$

Se fazemos agora $x = x^2, y = y^2$ e $z = z^2$ nesta identidade obtemos

$$w(y)^2y^2(w(z)^2x^2 + w(x)^2z^2) = 2x^2y^2 \cdot y^2z^2.$$

Segue agora das identidades (1) e (24) que (22) é satisfeita por A.

b)$\Rightarrow$ d): Linearizando (24) em x e y obtemos (23).

d)$\Rightarrow$ a): Se fazemos $x = z = u \in U$ e $y = t = e$ em (23) obtemos que $u^2 = 0$ ($\forall$ $u \in U$). Como assumimos que a característica de A é diferente de 2, segue que $U^2 = 0$ e A é excepcional.

c)$\Rightarrow$a): Linearizando a identidade (22) em y obtemos

$$(4ay \cdot ty + 2y^2 \cdot ta) \cdot x^2z^2 = (x^2 \cdot at) \cdot z^2y^2 + 2(x^2 \cdot yt)(z^2 \cdot ay)$$
$$+2(x^2 \cdot ay)(z^2 \cdot yt) + x^2y^2 \cdot (z^2 \cdot at).$$

Fazendo $a = t = u \in U$, $x = y = z = e$ e usando (4) obtemos $u^2 = 0$ ($\forall$ $u \in U$). Logo $U^2 = 0$ e A é excepcional.

Corolário. Se A é uma álgebra de Bernstein excepcional então $N^2N^2 = 0$.

Prova. O corolário é uma consequência imediata de (23).

Exemplo 2. Consideremos um corpo K e um conjunto enumerável de indeterminadas $X = \{x_1, x_2, ..., x_m, ...\}$. Seja $K[X]$ o espaço vetorial gerado sobre K pelo conjunto dos monômios comutativos e associativos nas variáveis x_i, $i \geq 1$.

Definimos a forma linear $w : K[X] \to K$ pondo $w(x_{i_1}x_{i_2}...x_{i_s}) = 1$ para todo monômio $x_{i_1}x_{i_2}...x_{i_s}$. Construimos uma estrutura de álgebra comutativa em $K[X]$ definindo a multiplicação como segue:

1. $x_i * x_j = x_i x_j$,

2. $x_i * m = m x_i$ para todo monômio m com pelo menos duas letras,

3. $m * n = \frac{1}{2}(m + n)$ para dois monômios m e n com duas ou mais letras cada um.

Então w é um homomorfismo de álgebras com respeito a $*$. Com efeito, se $\sum \alpha_i x_i + p$ e $\sum \beta_j x_j + q$ são dois elementos em $K[X]$, onde p e q são polinômios de grau ≥ 2, então

$$w([\sum \alpha_i x_i + p] * [\sum \beta_j x_j + q])$$

$$= w(\sum \alpha_i \beta_j x_i x_j + \sum \alpha_i x_i q + \sum \beta_j x_j p + p * q)$$

$$= \sum \alpha_i \beta_j + \sum \alpha_i w(q) + \sum \beta_j w(p) + w(p)w(q)$$

$$= [\sum \alpha_i + w(p)][\sum \beta_j + w(q)] = w(\sum \alpha_i x_i + p) w(\sum \beta_j x_j + q).$$

Se $x = \sum \alpha_i x_i + p \in K[X]$ e $x^2 = q$, onde p e q são polinômios de grau ≥ 2, então $x^2 * x^2 = q^2 = w(q)q = w(x)^2 x^2$. Assim $K[X]$ é uma álgebra de Bernstein. Além disso, se $x, y \in K[X]$ então $x * y = s$, onde s é um polinômio de grau ≥ 2. Logo, temos

$$(x * y) * (x * y) = s^2 = w(s)s = w(x * y) x * y$$

e portanto $K[X]$ é excepcional pelo teorema 7.

Proposição 8. Seja A uma álgebra de Bernstein. Se A é excepcional então satisfaz a identidade

$$(xa, yb, z) + (ya, zb, x) + (za, xb, y)$$

$$+(x, yb, za) + (y, zb, xa) + (z, xb, ya)$$

$$+(x, a, y) \cdot zb + (y, a, z) \cdot xb + (z, a, x) \cdot yb = 0. \qquad (25)$$

Prova. Usando (23) obtemos

$$2(xa, yb, z) = w(yb)xa \cdot z - w(ybz)xa,$$

$$2(x, a, y) \cdot zb = w(zb)xa \cdot y - w(zb)ay \cdot x.$$

Agora , expandimos cada um dos termos de (25) usando estas duas identidades e somamos para verificar que (25) é uma identidade de A.

Observação. Na seção 4 do capítulo II mostraremos que a identidade (25) gera (veja a seção 2 do capítulo II) todas as identidades de grau minimal (que não envolvem o homomorfismo w e não são consequência da lei comutativa) satisfeitas por toda álgebra de Bernstein excepcional, quando a característica do corpo é zero.

Referência: [L-6].

6. Álgebras de Bernstein nucleares

Como já mencionamos na seção 3 deste capítulo, uma álgebra de Bernstein A é chamada *nuclear* se $A^2 = A$. Micali-Ouattara [M] demonstraram que toda álgebra nuclear satisfaz a identidade

$$2x^4 - 3w(x)x^3 + w(x)^2x^2 = 0. \tag{26}$$

Teorema 9. Seja A uma álgebra de Bernstein nuclear. Então A satisfaz a identidade

$$2x^5 + 3x^2x^3 - 5x^2x^2 \cdot x = 0. \tag{27}$$

Prova. De (1) e (26) temos que A satisfaz

$$2x^4 + x^2x^2 = 3w(x)x^3, \tag{28}$$

logo satisfaz

$$2x^5 + x^2x^2 \cdot x = 3w(x)x^4. \tag{29}$$

De (1) e (8) obtemos

$$2x^2x^3 - x^2x^2 \cdot x = w(x)x^2x^2. \tag{30}$$

Multiplicando (28) por $w(x)$ e usando (1) e (30) obtemos

$$2x^2x^2 \cdot x - x^2x^3 = w(x)x^4.$$

Desta identidade e (29) o resultado segue.

Observação. Obteremos mais informações sobre a identidade (27) na seção 5 do capítulo II.

Referências: [G-2], [M].

7. Identidades de grau quatro

Nesta seção estudamos as álgebras de Bernstein que satisfazem uma identidade de grau quatro que não é consequência da comutatividade. Nosso estudo é baseado no seguinte resultado:

Teorema 10 (Hentzel-Piacentini Cattaneo-Carini [H-6]). Seja A uma álgebra comutativa sobre um corpo de característica $\neq 2, 3$, e suponhamos que A satisfaz uma identidade de grau quatro não implicada pela lei comutativa. Então A satisfaz pelo menos uma identidade de uma das seguintes famílias de identidades onde α, β e δ são escalares:

$$\alpha x^2 x^2 + \beta x^3 x = 0, \tag{31}$$

$$\beta\{yx^2 \cdot x - (yx \cdot x)x\} + \delta\{yx^3 - (yx \cdot x)x\} = 0, \tag{32}$$

$$\alpha\{(xy)^2 - x^2y^2\} + \beta\{(xy \cdot x)y + (xy \cdot y)x - y^2x \cdot x - x^2y \cdot y\} = 0, \tag{33}$$

$$(xy \cdot z)t - (xy \cdot t)z + (yt \cdot x)z - (yt \cdot z)x + (yz \cdot t)x - (yz \cdot x)t = 0. \tag{34}$$

Observamos que a identidade (34) é a identidade (16) da proposição

5.

O seguinte lema permite que os resultados estabelecidos nos próximos teoremas independam da dimensão da álgebra podendo esta dimensão ser eventualmente infinita.

Lema 11. Sejam A uma álgebra sobre um corpo K, m, n inteiros não-negativos, $n > 1$, $\beta \in K$ e $T : A \longrightarrow K$ uma forma linear não-nula. Se $T(x)^m(x^n + \beta T(x)x^{n-1}) = 0$ $(\forall x \in A)$ então

$$x^n + \beta T(x)x^{n-1} = 0 \quad (\forall x \in A).$$

Prova. Suponhamos que existe $b \in A$ tal que $b^n + \beta T(b)b^{n-1} \neq 0$. Assim $T(b) = 0$ e $b^n \neq 0$. Como $T \neq 0$ existe $a \in A$ tal que $T(a) \neq 0$. Se $\lambda \in K$ temos

$$T(x + \lambda y)^m((x + \lambda y)^n + \beta T(x + \lambda y)(x + \lambda y)^{n-1}) = 0$$

para todo $x, y \in A$. Expandindo esta expressão vemos que o coeficiente de λ^m é

$$T(y)^m\{x^n + \beta T(x)x^{n-1}\} + T(x)\{\text{um fator eventualmente zero}\}.$$

Se fazemos $x = b$ e $y = a$ obtemos $T(a)^m b^n = 0$. Como $T(a) \neq 0$ e $b^n \neq 0$ isto leva a uma contradição.

Seja A uma álgebra de Bernstein que satisfaz as condições do teorema 10. Então A satisfaz pelo menos uma identidade de uma das famílias de identidades (31) - (34). Em cada caso obtemos

primeiro condições sobre os coeficientes da identidade. No que segue, $A = Fe \oplus U \oplus Z$ como em (2).

Se A satisfaz (31) fazendo $x = e$ e aplicando o homomorfismo w à identidade obtida vemos que $\alpha = -\beta \neq 0$. Assim a identidade é equivalente a identidade $x^2x^2 = x^3x$. Neste caso, a álgebra A é de Jordan pelo teorema 2.

Suponhamos agora que A satisfaz (32). Fazemos $x = e$ e $y = u \in U$ para obter $(\beta + 3\delta)u = 0$. Quando $\beta + 3\delta \neq 0$ temos $U = 0$ e então por (4) A tem multiplicação trivial, isto é, $N^2 = 0$. Se $\beta + 3\delta = 0$ obtemos a identidade (13). É conhecido o fato de que toda álgebra de Jordan sobre um corpo de característica $\neq 2, 3$ satisfaz (13) mas a recíproca é falsa em geral (veja Osborn [O-3], Hentzel-Peresi [H-2]). Para álgebras de Bernstein a recíproca vale:

Teorema 12. Seja A uma álgebra de Bernstein. Então A é uma álgebra de Jordan se e somente se A satisfaz

$$2(yx \cdot x)x + yx^3 - 3yx^2 \cdot x = 0. \tag{13}$$

Prova. Linearizando a identidade (13) em x obtemos

$$2(yx\cdot x)z+2(yx\cdot z)x+2(yz\cdot x)x+2(xz\cdot x)y+x^2z\cdot y-6(xz\cdot y)x-3x^2y\cdot z = 0.$$

Pondo $z = y = x^2$ obtemos

$$2x^4x^2 - 2x^3x^2 \cdot x - x^2x^2 \cdot x^2 + (x^2x^2 \cdot x)x = 0.$$

Agora usamos as identidades (1), (7) e (8) para obter

$$w(x)^2(x^4 - w(x)x^3) = 0.$$

Pelo lema 11 segue que A satisfaz a identidade

$$x^4 - w(x)x^3 = 0. \tag{35}$$

Fazemos agora $y = x^2$ em (13) para obter

$$2x^5 + x^2x^3 - 3x^2x^2 \cdot x = 0.$$

Usando esta última identidade, as identidades (1), (8), (35) e o lema 11 obtemos $x^3 - w(x)x^2 = 0 \quad (\forall x \in A)$, o que prova que A é uma álgebra de Jordan pelo teorema 2.

Suponhamos agora que A satisfaz uma identidade da família (33). Fazemos primeiro $x = e$ e assumimos que $y \in U$ em (33) para obter $(\alpha - \beta)y^2 = 0$, isto é, $\alpha \neq \beta$ implica $U^2 = 0$. Se fazemos $x = e$ e assumimos $y \in Z$, obtemos $(2\alpha + \beta)y^2 = 0$, isto é, $2\alpha + \beta \neq 0$ implica $Z^2 = 0$. Finalmente, linearizando (33) em x temos

$$2\alpha\{xy \cdot zy - xz \cdot y^2\} + \beta\{(zy \cdot x)y + (xy \cdot z)y + (zy \cdot y)x$$

$$+(xy \cdot y)z - y^2z \cdot x - y^2x \cdot z - 2(xz \cdot y)y\} = 0.$$

Se fazemos aqui $y = e$ e assumimos que $x \in U$ e $z \in Z$ obtemos $(2\alpha + \beta)xz = 0$, isto é, $2\alpha + \beta \neq 0$ implica $UZ = 0$. Assim se A satisfaz (33) com $2\alpha + \beta \neq 0$ e $\alpha \neq \beta$ então $U^2 = Z^2 = UZ = 0$ e A é uma álgebra de Bernstein com multiplicação trivial. Se

$\alpha = \beta$ obtemos que $P(x,y) = 0$ e A é normal pelo teorema 6. Se $2\alpha + \beta = 0$ a identidade (33) é a identidade (36) abaixo e temos o seguinte resultado:

Teorema 13. Para uma álgebra de Bernstein A as seguintes afirmações são equivalentes:

a) $U^2 = 0$, $uz_1 \cdot z_2 = uz_2 \cdot z_1$ e ${z_1}^2 z_2 = z_1 \cdot z_1 z_2$ $(\forall u \in U,\ z_i \in Z)$.

b) A satisfaz a identidade

$$2y^2x\cdot x+2x^2y\cdot y+(xy)^2-x^2y^2-2(xy\cdot x)y-2(xy\cdot y)x = 0. \quad (36)$$

Prova. a)$\Rightarrow$b): Tomando elementos $x = \alpha e + u_1 + z_1$, $y = \beta e + u_2 + z_2$ em A com $u_i \in U$, $z_i \in Z$ e usando as hipóteses vemos que estes elementos satisfazem (36).

b)$\Rightarrow$a): Linearizando (36) em y obtemos

$$2(yz \cdot x)x + x^2z \cdot y + x^2y \cdot z + xy \cdot xz - x^2 \cdot yz$$

$$-(xz \cdot x)y - (xy \cdot x)z - (xz \cdot y)x - (xy \cdot z)x = 0 \qquad (37)$$

e

$$2(yz \cdot w)x + 2(yz \cdot x)w + 2(xw \cdot z)y + 2(xw \cdot y)z + xy \cdot wz - wy \cdot xz$$

$$-2xw \cdot yz - (wz \cdot x)y - (xz \cdot w)y - (xy \cdot w)z - (wy \cdot x)z - (wz \cdot y)x$$

$$-(xz \cdot y)w - (wy \cdot z)x - (xy \cdot z)w = 0. \qquad (38)$$

Fazendo agora $x = z_1 \in Z$, $z = z_2 \in Z$ e $y = e$ em (37) obtemos $z_1^2 z_2 = z_1 \cdot z_1 z_2$ $(\forall z_1, z_2 \in Z)$. Como $\alpha \neq \beta$ temos que $U^2 = 0$.

Então se fazemos $y = e$, $x = z_1 \in Z$, $z = z_2 \in Z$ e $w = u \in U$ em (38) obtemos $uz_2 \cdot z_1 = uz_1 \cdot z_2$ $(\forall u \in U$ e $z_i \in Z)$.

Finalmente, para álgebras de Bernstein satisfazendo a identidade (34) temos:

Teorema 14. Para uma álgebra de Bernstein A as seguintes afirmações são equivalentes:

a) $Ker(w)$ é nilpotente de índice ≤ 3 e $UZ = 0$.

b) A satisfaz a identidade (34).

Prova. a)$\Rightarrow$ b): É suficiente tomar elementos x, y, z, $t \in A$ e ver diretamente que com as hipóteses estes elementos satisfazem (34).

b)$\Rightarrow$ a): Se agora supomos que $x \in U, z \in Z$ e $y = t = e$ obtemos de (34) que $UZ = 0$. Se agora tomamos $y = t \in U, z \in Z$ e $x = e$ obtemos de (34) que $U^2Z = 0$. Disto e das relações (4) temos

$$(U + Z)^2 = U^2 + Z^2,$$

$$(U + Z)^3 = (U^2 + Z^2)(U + Z) = U^3 + U^2Z + UZ^2 + Z^3 = 0.$$

Assim, $Ker(w) = U \oplus Z$ é nilpotente com índice ≤ 3.

É fácil ver que uma álgebra de Bernstein tal que $U \neq 0$ não satisfaz nenhuma identidade homogênea de grau 3. De fato, con-

sideremos a identidade

$$\alpha xy \cdot z + \beta yz \cdot x + \gamma zx \cdot y = 0.$$

Fazendo $x = y = z = e$ e aplicando o homomorfismo w à identidade (34) obtemos que $\alpha + \beta + \gamma = 0$. Se agora fazemos $x = y = e$ e $z = u \in U$ obtemos $2\alpha + \beta + \gamma = 0$. Logo $\alpha = 0$. Analogamente obtemos que $\beta = \gamma = 0$. Como não existem identidades de grau ≤ 2 não implicadas pela comutatividade exceto a própria comutatividade, podemos resumir nossos resultados no seguinte

Teorema 15. Seja A uma álgebra de Bernstein sobre um corpo de característica $\neq 2, 3$. Então A satisfaz uma identidade de grau ≤ 4 que não é implicada pela comutatividade se e somente se A satisfaz pelo menos uma das seguintes afirmações:

a) A é uma álgebra de Jordan.

b) $Ker(w)$ é nilpotente de índice ≤ 3 e $UZ = 0$.

c) $U^2 = 0$, $uz_1 \cdot z_2 = uz_2 \cdot z_1$, ${z_1}^2 z_2 = z_1 \cdot z_1 z_2$, $\forall u \in U$ e $z_1, z_2 \in Z$.

Exemplo 3.(Lyubich [L-7]). Seja $A_{T,g}$ uma álgebra de Bernstein definida da seguinte maneira. Seja V um espaço vetorial sobre um corpo K e seja $T : V \longrightarrow V$ um operador linear que satisfaz a condição $T = T^2$ e uma função linear não-nula $g : V \longrightarrow K$

que verifica a condição $goT = g$. Definimos a multiplicação em V por

$$xy = \frac{1}{2}\{g(y)T(x) + g(x)T(y)\}.$$

Esta álgebra satisfaz a identidade (14). Assim $A_{T,g}$ é uma álgebra de Bernstein normal pelo teorema 6. Além disso podemos observar que a normalidade implica a) e b) do teorema 15, como segue da proposição 5 e do teorema 14.

Exemplo 4. Consideremos a álgebra de Bernstein A com base e, u_1, u_2, z e multiplicação dada por $e^2 = e, eu_i = 1/2u_i, u_1z = u_2$, demais produtos iguais a zero. Esta álgebra satisfaz a identidade (13). Assim é uma álgebra de Jordan pelo teorema 12, mas não é normal já que $UZ \neq 0$. Além disso, A satisfaz c) e não satisfaz b) do teorema 15.

Exemplo 5. Seja A a álgebra de Bernstein com base c_0, c_1, c_2 e multiplicação dada por $c_0^2 = c_0$, $c_0c_1 = 1/2c_1$, $c_2^2 = c_1$, $c_0c_2 = c_1^2 = c_1c_2 = 0$, demais produtos iguais a zero. Podemos ver que A satisfaz b) e c) do teorema 15, mas não é uma álgebra de Jordan já que $(c_0 + c_1)^2c_2 \cdot (c_0 + c_2) - (c_0 + c_1)^2 \cdot c_2(c_0 + c_2) = -1/2c_1 \neq 0$.

Referências: [H-2, 6], [L-7], [O-3].

8. Álgebras de Bernstein de ordem n

Uma álgebra ponderada (A, w) é uma *álgebra de Bernstein de ordem n* se ela satisfaz

$$x^{[n+2]} = w(x)^{2^n} x^{[n+1]} \quad (\forall x \in A), \tag{39}$$

onde a potência $x^{[n]}$ é a *n-ésima potência plena de x* definida por $x^{[1]} = x$ e $x^{[n]} = x^{[n-1]}x^{[n-1]}$ para $n > 1$. O caso $n = 1$ corresponde às álgebras de Bernstein já definidas. Esta generalização do conceito de álgebra de Bernstein foi dada por Abraham em [A-1].

Se A é uma álgebra de Bernstein de ordem n então todo elemento da forma $e = w(x)^{-2^n} x^{[n+1]}$ com $w(x) \neq 0$ é um elemento idempotente da álgebra. O homomorfismo w é únicamente determinado e se $N = Ker(w)$ então $N = U \oplus Z_n$ onde $U = Ker(2I - L_e)$ e $Z_n = Ker(L_e^n)$. Além disso, temos que $U^2 \subset Z_n$ e o operador L_e satisfaz $2L_e^{n+1} = L_e^n$. Toda álgebra de Bernstein de ordem n satisfaz a identidade

$$(x^{[n+2]}, y, x^{[n+1]}) = 0$$

de grau $3 \cdot 2^n + 1$.

O seguinte teorema é uma generalização do teorema 2.

Teorema 16. Seja (A, w) uma álgebra ponderada associativa nas potências (não necessariamente de dimensão finita) sobre um corpo de característica $\neq 2$. As seguintes afirmações são equivalentes:

a) A é uma álgebra de Bernstein de ordem n.

b) $x^{2^n+1} - w(x)x^{2^n} = 0 \quad (\forall x \in A)$.

c) $x^{2^{n+1}} = w(x)^k x^{2^{n+1}-k} \quad (\forall k,\ 1 \leq k \leq 2^n)$.

Prova. a)$\Rightarrow$ b): Como A é associativa nas potências, de (39) temos

$$x^{2^{n+1}} = w(x)^{2^n} x^{2^n} \quad (\forall x \in A). \tag{40}$$

Linearizando parcialmente (40) obtemos

$$[x^{2^{n+1}}]\delta_x^1(y) = [w(x)^{2^n}]\delta_x^1(y)x^{2^n} + w(x)^{2^n}[x^{2^n}]\delta_x^1(y),$$

i.e.

$$[x^{2^{n+1}}]\delta_x^1(y) = 2^n w(x)^{2^n-1} w(y) x^{2^n} + w(x)^{2^n}[x^{2^n}]\delta_x^1(y).$$

Se fazemos $y = x^2$ obtemos

$$2^{n+1} x^{2^{n+1}+1} = 2^n w(x)^{2^n+1} x^{2^n} + 2^n w(x)^{2^n} x^{2^n+1}. \tag{41}$$

Multiplicando (40) por $2^{n+1}x$ obtemos

$$2^{n+1} x^{2^{n+1}+1} = 2^{n+1} w(x)^{2^n} x^{2^n+1}. \tag{42}$$

Subtraindo (41) de (42) e dividindo por 2^n obtemos

$$w(x)^{2^n}(x^{2^n+1} - w(x)x^{2^n}) = 0.$$

Assim, pelo lema 11, obtemos $x^{2^n+1} - w(x)x^{2^n} = 0 \quad (\forall x \in A)$.

b)$\Rightarrow$ c): Temos que

$$x^{2^{n+1}} = x^{2^n+1}x^{2^n-1} = w(x)x^{2^{n+1}-1}$$

e então

$$x^{2^{n+1}} = w(x)x^{2^{n+1}-1} = w(x)x^{2^n+1} \cdot x^{2^n-2} = w(x)^2x^{2^{n+1}-2}.$$

Se continuamos este processo obtemos que

$$x^{2^{n+1}} = w(x)^k x^{2^{n+1}-k} \quad (\forall k,\ 1 \leq k \leq 2^n).$$

c)$\Rightarrow$ a): Para $k = 2^n$ na identidade anterior obtemos (39).

Observação. É conhecido o fato de que para característica $\neq 2, 3, 5$ a identidade (11) é equivalente a associatividade nas potências [S, p.130]. É claro que a identidade de Jordan implica esta identidade. Assim, para característica $\neq 2, 3, 5$ toda álgebra de Jordan é associativa nas potências. Neste caso, o teorema anterior pode ser aplicado às álgebras ponderadas que são de Jordan.

Referências: [A-1], [H-4], [S], [W-1].

CAPÍTULO II

IDENTIDADES MINIMAIS EM ÁLGEBRAS DE BERNSTEIN

A classe das álgebras de Bernstein não é uma variedade de álgebras, pois nem toda subálgebra de uma álgebra de Bernstein é uma álgebra de Bernstein. Um problema natural é, portanto, encontrar a menor variedade que contém as álgebras de Bernstein. Em outras palavras, o problema consiste em determinar as identidades minimais, isto é, as identidades de menor grau que são satisfeitas por toda álgebra de Bernstein mas não são consequência da lei comutativa e não envolvem o homomorfismo w. Este problema foi proposto pelo professor Roberto Costa. Dedicamos este capítulo à obtenção de identidades minimais nos casos das álgebras de Bernstein normais, excepcionais, nucleares e finalmente em uma álgebra de Bernstein arbitrária. As ferramentas fundamentais para este trabalho são a construção explícita de uma representação do grupo simétrico S_n dada por Boerner em [B-2] e melhorada por Clifton em [C-1], e

um método computacional introduzido por Hentzel em [H-1], que permite representar identidades por meio de matrizes.

Os resultados deste capítulo, com exceção daqueles apresentados na seção 4, foram obtidos em colaboração com os professores Irvin Roy Hentzel e Luiz Antonio Peresi conforme [C-3].

1. A representação do grupo simétrico

Um *diagrama de Young* é um diagrama composto por n quadrados ordenados de cima para baixo de maneira decrescente por linhas e colunas. Um *tableau* é um ordenamento arbitrário dos números de 1 a n nos quadrados de um diagrama de Young. Um tableau é dito *tableau standard* quando a ordem dos números é crescente por linhas e colunas. Para $n = 4$ os diagramas de Young com seus tableaux standard respectivos são os seguintes:

```
[] [] [] []    1 2 3 4

[] [] []       1 2 3     1 2 4     1 3 4
[]             4         3         2

[] []          1 2       1 3
[] []          3 4       2 4

[] []          1 2       1 3       1 4
[]             3         2         2
[]             4         4         3
```

$$\begin{array}{ll} [\,] & 1 \\ [\,] & 2 \\ [\,] & 3 \\ [\,] & 4 \end{array}$$

A cada diagrama de Young corresponde uma representação $S_n \to L_t(F)$, onde $L_t(F)$ é o grupo linear das matrizes inversíveis $t \times t$ sobre F e o número t é dado pelo número total de tableaux standard que possue o respectivo diagrama. Obtemos assim uma representação natural de S_n em uma soma de grupos lineares, onde a quantidade de somandos é igual ao número total de diagramas de Young para n. Por exemplo, no caso $n = 4$, temos um total de cinco representações de graus 1, 3, 2, 3 e 1 respectivamente, e um homomorfismo que leva S_4 em uma soma de 5 grupos lineares, a saber

$$S_4 \to L_1(F) \oplus L_3(F) \oplus L_2(F) \oplus L_3(F) \oplus L_1(F).$$

Fixado um diagrama de Young, a construção do homomorfismo respectivo é feita como segue. Sejam $\tau_1, \tau_2, ..., \tau_s$ os correspondentes tableaux standard e seja π uma permutação em S_n. Definimos o tableau $\pi\tau_i$ como o tableau obtido ao aplicarmos a permutação π aos números em τ_i. Por exemplo, se $\pi = (12)(34)$ então

$$\pi \begin{pmatrix} 1 & 2 & 3 \\ 4 & & \end{pmatrix} = \begin{array}{ccc} 2 & 1 & 4 \\ 3 & & \end{array}.$$

Construimos a matriz $A_\pi = (a_{ij})$ da seguinte maneira: Se

existem dois números (distintos) na interseção como conjuntos de uma coluna de τ_i e uma linha de $\pi\tau_j$ então $a_{ij} = 0$. Em caso contrário $a_{ij} = sgn(\sigma)$, onde σ é a permutação que deixa fixas as colunas de τ_i como conjuntos, mas leva os números de τ_i nas linhas em que eles aparecem em $\pi\tau_j$. A matriz associada a π é a matriz $A_I^{-1}A_\pi$, onde I é a permutação identidade. Devemos observar que A_I é a matriz identidade quando $n \leq 4$ e é diferente da matriz identidade para $n \geq 5$ como veremos na seção 5. Do exemplo anterior temos que a imagem dos geradores (12) e (1234) de S_4 é:

$$(12) \mapsto [1] \oplus \begin{bmatrix} 1 & 0 & -1 \\ 0 & 1 & -1 \\ 0 & 0 & -1 \end{bmatrix} \oplus \begin{bmatrix} 1 & -1 \\ 0 & -1 \end{bmatrix} \oplus \begin{bmatrix} 1 & -1 & 1 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix} \oplus [-1],$$

$$(1234) \mapsto [1] \oplus \begin{bmatrix} -1 & 1 & 0 \\ -1 & 0 & 1 \\ -1 & 0 & 0 \end{bmatrix} \oplus \begin{bmatrix} -1 & 0 \\ -1 & 1 \end{bmatrix} \oplus \begin{bmatrix} 1 & -1 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix} \oplus [-1].$$

Toda representação σ de FS_n induz uma representação $\tilde{\sigma} = \sigma|_{S_n}$ de S_n e reciprocamente. Esta correspondência é únicamente determinada. Assim podemos usar uma representação natural de S_n para obter uma representação de FS_n. Obtemos que FS_n é isomorfo a uma soma direta de álgebras de matrizes. Do exemplo anterior temos que

$$FS_4 \cong M_1(F) \oplus M_3(F) \oplus M_2(F) \oplus M_3(F) \oplus M_1(F).$$

Observação. No que segue vamos usar a aplicação $\pi \mapsto A_\pi$ que não é uma representação pois $A_{\pi\sigma} = A_\pi A_I^{-1} A_\sigma$, mas estabelece uma correspondência entre permutações e matrizes suficiente para os nossos propósitos. Cometeremos o abuso de chamar a aplicação $\pi \to A_\pi$ de representação (irredutível).

Para nosso propósito de encontrar novas identidades em uma álgebra, é necessário conhecer a aplicação inversa de uma representação. Para isto fixemos um diagrama de Young e sejam $\tau_1, ..., \tau_s$ os tableaux standard determinados por este diagrama. Seja S_{ij} a permutação definida por $S_{ij}\tau_j = \tau_i$ e sejam P o conjunto das permutações que deixam fixas as linhas de τ_i e Q o conjunto de todas as permutações que deixam fixas as colunas de τ_i (como conjuntos). Definimos o elemento e_i de FS_n como

$$e_i = \frac{s}{n!} \sum_{p \in P,\, q \in Q} sgn(q)pq$$

Os elementos $e_i S_{ij}$ são ditos as *unidades* de FS_n.

Teorema 1. Em FS_n o produto

$$(\sum a_{ij} S_{ij} e_j)(\sum b_{ij} S_{ij} e_j)$$

pode ser escrito na forma

$$\sum c_{ij} S_{ij} e_j$$

onde os coeficientes c_{ij} são dados pelo produto de matrizes

$$(c_{ij}) = (a_{ij}) A_I (b_{ij}).$$

Prova. Veja [R, p. 22].

Teorema 2. A representação $\pi \to A_\pi$ leva $S_{ij}e_j$ em $A_I E_{ij} A_I$.

Prova. Clifton [C-1, p. 249] mostrou que se $A_\pi = (p_{ij})$ então

$$e_k \pi e_l = p_{kl} S_{kl} e_l.$$

Aplicando este resultado a $\pi = S_{ij}e_j$ temos

$$e_k(S_{ij}e_j)e_l = p_{kl}S_{kl}e_l.$$

Por outro lado, usando o teorema 1, obtemos

$$e_k(S_{ij}e_j)e_l = (S_{kk}e_k)(S_{ij}e_j)(S_{ll}e_l) = c_{kl}S_{kl}e_l,$$

onde $c_{kl} = E_{kk}A_I E_{ij} A_I E_{ll}$. Portanto, $(p_{kl}) = A_I E_{ij} A_I$ e o resultado segue.

Como consequência imediata do teorema 2 temos o

Teorema 3. Se $B = (b_{ij})$ então a matriz associada a $\sum b_{ij}S_{ij}e_j$ é a matriz $A_I B A_I$.

Do teorema 3 segue o

Teorema 4. Seja M uma matriz $t \times t$, onde t é o grau da representação. Seja

$$C = (c_{ij}) = A_I^{-1} M A_I^{-1}.$$

Então a representação leva o elemento $\sum c_{ij}S_{ij}e_j$ em M.

A aplicação inversa de uma representação é dada pelo teorema 4.

Referências: [B-2], [C-1], [C-3], [H-1], [P-1], [R].

2. Processamento de identidades

Seja A uma álgebra sobre um corpo F e

$$P : FS_n \to M_r[F]$$

uma representação de grau r. Se $\phi \in \prod_{i=1}^{c} FS_n$, $c \geq 1$, é uma identidade de A então ela pode ser representada como soma de c matrizes de ordem r pelo homomorfismo

$$\hat{P} : \prod_{i=1}^{c} FS_n \to \bigoplus_{i=1}^{c} M_r[F]$$

induzido por P.

Sejam $\phi_1, \phi_2, ..., \phi_n \in \prod_{i=1}^{c} FS_n$ identidades de A e consideremos o FS_n-módulo L gerado por elas. Então uma identidade ϕ_{n+1} é consequência de $\phi_1, \phi_2, ..., \phi_n$ se e somente se $\phi_{n+1} \in L$. Neste caso, dizemos também que as identidades $\phi_1, \phi_2, ..., \phi_n$ geram a identidade ϕ_{n+1}. Isto é equivalente a ter que $\hat{P}(\phi_{n+1}) \in \hat{P}(L)$ para todos os homomorfismos $\hat{P}$ induzidos por todas as representações irredutíveis P de FS_n. Então para que a identidade ϕ_{n+1} não seja uma consequência das outras identidades, é suficiente

que exista uma representação para a qual isto não ocorre. Fixada uma representação P, podemos formar uma matriz de blocos com as matrizes $\hat{P}(\phi_1), \hat{P}(\phi_2), ..., \hat{P}(\phi_{n+1})$. Calculamos o posto desta matriz com e sem as linhas provenientes da identidade ϕ_{n+1}. Se o posto é o mesmo, então $\phi_{n+1} \in L$. Se o posto aumenta, então ϕ_{n+1} não pertence a L e não é consequência de $\phi_1, \phi_2, ..., \phi_n$ no que diz respeito a esta representação.

O professor Irvin Roy Hentzel escreveu um programa denominado CRUNCH que calcula a matriz de blocos e a reduz a sua forma canônica de linhas (isto é, forma escalonada). O input é um conjunto de identidades e o output é uma matriz escalonada para cada aplicação $\pi \mapsto A_\pi$. O input é obtido linearizando a ou as identidades a estudar e fazendo um arquivo em forma de coluna, e o output é obtido em forma de blocos de matrizes separados por tipos de associação (ver seção 3). Devemos observar finalmente que faremos os cálculos no processo de escalonamento módulo 103, para facilitar as contas.

Observação. O programa CRUNCH utiliza a aplicação $\pi \to (A_\pi)^t$. Logo, para aplicarmos o teorema 4 a uma matriz que aparece no output temos que considerar a transposta desta matriz.

Referências: [B-2], [C-1], [C-3], [P-1].

3. Identidades minimais em álgebras de Bernstein normais

Nosso primeiro propósito é encontrar todas as identidades minimais satisfeitas por uma álgebra de Bernstein normal. Na seção 7 do capítulo I vimos que se uma identidade é satisfeita por uma álgebra de Bernstein então tem grau ≥ 4. Pela definição uma álgebra de Bernstein normal A satisfaz a identidade

$$a^2c - w(a)ac = 0 \ \ (\forall a, b, c \in A).$$

Linearizando esta identidade obtemos

$$f(a, b, c) = 2ab \cdot c - w(a)bc - w(b)ac = 0.$$

Esta identidade fornece quatro identidades de grau quatro, a saber

$$\begin{aligned} f(a, b, c)d &= 0, \qquad & f(ad, b, c) &= 0, \\ f(a, b, cd) &= 0, \qquad & f(a, b, c)w(d) &= 0. \end{aligned} \tag{1}$$

Estas identidades envolvem quatro funções $\hat{T}_i : \prod_{i=1}^{4} A \to A$ que são

$$\begin{aligned} \hat{T}_1(a, b, c, d) &= w(a)bc \cdot d, \qquad & \hat{T}_3(a, b, c, d) &= (ab \cdot c)d, \\ \hat{T}_2(a, b, c, d) &= w(ab)cd, \qquad & \hat{T}_4(a, b, c, d) &= ab \cdot cd. \end{aligned}$$

A função $\hat{T}_i$ corresponde ao tipo de associação T_i, onde

$$\begin{aligned} T_1 &= W(A)AA \cdot A, \qquad & T_3 &= (AA \cdot A)A, \\ T_2 &= W(AA)AA, \qquad & T_4 &= AA \cdot AA. \end{aligned}$$

A lei comutativa induz seis identidades a partir dos tipos de associação, que são:

$$
\begin{array}{cc}
T_1 & T_3 \\
w(a)bc \cdot d - w(a)cb \cdot d = 0, & (ab \cdot c)d - (ba \cdot c)d = 0, \\
T_2 & T_4 \\
w(ab)cd - w(ba)cd = 0, & ab \cdot cd - ba \cdot cd = 0, \\
w(ab)cd - w(ab)dc = 0, & ab \cdot cd - cd \cdot ab = 0.
\end{array}
\tag{2}
$$

Temos assim um total de dez identidades de grau quatro que são satisfeitas por uma álgebra de Bernstein normal. Observamos do teorema 2 do capítulo I, que toda álgebra ponderada que satisfaz a identidade (9) do capítulo I é de Bernstein. Assim, não é necessário considerar aqui a identidade (1) do capítulo I, que define as álgebras ponderadas que são de Bernstein. Escrevemos cada uma das dez identidades como uma soma de elementos em FS_4, separando os termos por tipos de associação. Para este processo escrevemos as identidades na tábua I. A primeira coluna indica o número da identidade, a segunda indica o tipo de associação, a terceira indica a ordem em que aparecem os elementos na identidade assumindo que a ordem inicial é $abcd$ e, por último, a quarta coluna indica o coeficiente que leva cada termo da identidade. Na tábua I, as identidades 1 a 6 correspondem às identidades (2) provenientes da comutatividade e as identidades 7 a 10 correspondem às identidades (1).

tábua I

1	1	abcd	1
1	1	acbd	-1
2	2	abcd	1
2	2	bacd	-1
3	2	abcd	1
3	2	abdc	-1
4	3	abcd	1
4	3	bacd	-1
5	4	abcd	1
5	4	bacd	-1
6	4	abcd	1
6	4	cdab	-1
7	3	abcd	2
7	1	abcd	-1
7	1	bacd	-1
8	3	adbc	2
8	2	adbc	-1
8	1	badc	-1
9	4	abcd	2
9	1	acdb	-1
9	1	bcda	-1
10	1	dabc	2
10	2	adbc	-1
10	2	bdac	-1

Para cada representação P de S_4 obtemos as formas escalonadas das matrizes de blocos. Fazemos isto primeiro só para as identidades (2), provenientes da comutatividade, e depois para as identidades (1) e (2) juntas. Para a primeira representação, correspondente ao diagrama [ ][ ][ ][ ], a matriz escalonada das identidades (2) é a matriz nula, e quando consideramos as identidades (1) e (2) a matriz correspondente é

$$\begin{vmatrix} T_1 & T_2 & T_3 & T_4 \\ 1 & 0 & 0 & -1 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & -1 \end{vmatrix}$$

Estamos procurando identidades que envolvem os tipos de associação sem o homomorfismo w. Do teorema 4 vemos que a última linha representa a identidade

$$\begin{array}{cc} (AA \cdot A)A & AA \cdot AA \\ e_1 & -e_1 \end{array}$$

com

$$e_1 = \sum_{p \in P, q \in Q} sgn(q)pq,$$

onde P é o conjunto de permutações que deixam fixas as linhas e Q é o conjunto de permutações que fixam as colunas do tableau

$$1 \ 2 \ 3 \ 4$$

que é único para este diagrama. Assim $P = S_4$ e $Q = \{I\}$. Desta

forma a identidade é dada por

$$\begin{array}{ccc} (AA \cdot A)A & & AA \cdot AA \\ \sum_{\pi \in S_4} \pi & - & \sum_{\pi \in S_4} \pi \end{array}$$

A forma polinomial desta identidade é

$$\sum_{\pi \in S_4} (\tilde{T}_3)_\pi(a,b,c,d) - \sum_{\pi \in S_4} (\tilde{T}_4)_\pi(a,b,c,d)$$

$$= 2(bc \cdot a)d + 2(bc \cdot d)a + 2(bd \cdot c)a + 2(ab \cdot c)d + 2(bd \cdot a)c$$

$$+2(ab \cdot d)c + 2(cd \cdot b)a + 2(ac \cdot b)d + 2(ad \cdot b)c + 2(cd \cdot a)b$$

$$+2(ac \cdot d)b + 2(ad \cdot c)b - 8bc \cdot ad - 8bd \cdot ac - 8ab \cdot cd$$

$$= [a^3a - a^2a^2]\delta_a^1(b)\delta_a^1(c)\delta_a^1(d).$$

Assim temos que A satisfaz a identidade

$$a^3a - a^2a^2 = 0.$$

Note agora que esta identidade pode ser lida diretamente de

$$\begin{array}{cc} T_3 & T_4 \\ 1 & -1 \end{array}$$

Estudamos agora a representação associada ao segundo diagrama:

$$\begin{array}{ccc} [\,] & [\,] & [\,] \\ [\,] & & \end{array} \qquad \begin{array}{ccc} & \tau_1 & \\ 1 & 2 & 3 \\ 4 & & \end{array} \qquad \begin{array}{ccc} & \tau_2 & \\ 1 & 2 & 4 \\ 3 & & \end{array} \qquad \begin{array}{ccc} & \tau_3 & \\ 1 & 3 & 4 \\ 2 & & \end{array}$$

A matriz escalonada considerando só as identidades (2) é:

$$
\left|\begin{array}{ccc|ccc|ccc|ccc}
 & T_1 & & & T_2 & & & T_3 & & & T_4 & \\
0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 2 & 0 & 0 & 0 \\
\hline
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{array}\right|
$$

A matriz escalonada quando consideramos as identidades (1) e (2) é:

$$
\left|\begin{array}{ccc|ccc|ccc|ccc}
 & T_1 & & & T_2 & & & T_3 & & & T_4 & \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 2 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 2 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & -2 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 2 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{array}\right|
$$

Observamos que um novo degrau aparece para o tipo T_3 na linha

$$0 \quad 1 \quad 0$$

A matriz correspondente é

$$\begin{array}{c} T_3 \\ \begin{vmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 1 & 0 \end{vmatrix} \end{array}.$$

Pelo teorema 4, a identidade é dada por

$$(AA \cdot A)A$$
$$S_{23}e_3$$

onde $S_{23}(\tau_2) = \tau_3$. Aqui, S_{23} é a permutação (23). Os conjuntos P e Q são

$$P = \{I, (13), (14), (34), (134), (143)\}, \quad Q = \{I, (12)\}.$$

Assim temos que a identidade como elemento de FS_4 é

$$\phi = (23)\{I + (13) + (14) + (34) + (134) + (143)\}\{I - (12)\}.$$

A forma polinomial da identidade é dada por

$$(\tilde{T}_3)_\phi(a, b, c, d)$$

$$= 2(ac \cdot b)d - 2(bc \cdot a)d + 2(ad \cdot b)c - 2(bd \cdot a)c + 2(cd \cdot b)a - 2(cd \cdot a)b$$

que é equivalente à identidade

$$2(ba \cdot a)a - 3a^2b \cdot a + a^3b = 0.$$

Estudamos agora a representação correspondente ao terceiro diagrama:

$$\begin{array}{cc} [\,] & [\,] \\ [\,] & [\,] \end{array} \qquad \begin{array}{cc} \multicolumn{2}{c}{\tau_1} \\ 1 & 2 \\ 3 & 4 \end{array} \qquad \begin{array}{cc} \multicolumn{2}{c}{\tau_2} \\ 1 & 3 \\ 2 & 4 \end{array}$$

Consideramos primeiro somente as identidades correspondentes à comutatividade obtendo a matriz escalonada

$$\left|\begin{array}{cc|cc|cc|cc} \multicolumn{2}{c|}{T_1} & \multicolumn{2}{c|}{T_2} & \multicolumn{2}{c|}{T_3} & \multicolumn{2}{c|}{T_4} \\ 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 2 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 2 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 2 \end{array}\right|$$

Consideramos agora todas as identidades obtendo a matriz

$$\left|\begin{array}{cc|cc|cc|cc} T_1 & & T_2 & & T_3 & & T_4 & \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & -1 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 99 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 2 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & -1 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 52 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 2 \end{array}\right|$$

Observamos que aqui aparece um novo degrau (envolvendo os tipos T_3 e T_4) na sexta linha. Lembramos que esta linha está escrita módulo 103. Temos então que considerar a matriz

$$\begin{array}{cc} T_3 & \\ 0 & 0 \\ 0 & 2 \end{array} \qquad \begin{array}{cc} T_4 & \\ 0 & 0 \\ 0 & 1 \end{array}$$

A identidade correspondente é

$$\begin{array}{ccc} (AA \cdot A)A & & AA \cdot AA \\ 2S_{22}\epsilon_2 & + & S_{22}\epsilon_2 \end{array}$$

onde $S_{22} = I$. Os conjuntos P e Q correspondentes são

$$P = \{I, (13), (24), (13)(24)\}, Q = \{I, (12), (34), (12)(34)\}.$$

Assim, a parte correspondente ao tipo de associação T_3 é

$$\phi_3 = 2\{I + (13) + (24) + (13)(24)\}\{I - (12) - (34) + (12)(34)\}$$

e a correspondente a T_4 é dada por

$$\phi_4 = \{I + (13) + (24) + (13)(24)\}\{I - (12) - (34) + (12)(34)\}.$$

Obtemos assim que a forma polinomial da identidade é:

$$I(a,b,c,d) = (\hat{T}_3)_{\phi_3}(a,b,c,d) + (\hat{T}_4)_{\phi_4}(a,b,c,d)$$

$$= 2(cb \cdot a)d - 2(ca \cdot b)d - 2(db \cdot a)c + 2(da \cdot b)c + 2(ad \cdot c)b - 2(bd \cdot c)a$$

$$-2(ac \cdot d)b + 2(bc \cdot d)a + 2(cd \cdot a)b - 2(cd \cdot b)a - 2(dc \cdot a)b + 2(dc \cdot b)a$$

$$+4ad \cdot bc - 4ac \cdot bd.$$

A identidade

$$H(x,y) = 2(xy)^2 - x^2y \cdot y - y^2x \cdot x = 0$$

implica a identidade $I(a,b,c,d) = 0$. Por outro lado, a identidade $I(a,b,c,d) = 0$ implica

$$P(x,y) = (xy)^2 - x^2y^2 + (xy \cdot x)y + (xy \cdot y)x - y^2x \cdot x - x^2y \cdot y = 0.$$

Como vimos na prova do teorema 6 do capítulo I, as identidades $H(x,y) = 0$ e $P(x,y) = 0$ são equivalentes módulo $x^2x^2 = x^3x$. Portanto, as identidades $I(a,b,c,d) = 0$ e $H(x,y) = 0$ são equivalentes módulo $x^2x^2 = x^3x$.

Estudamos agora a representação dada pelo diagrama

		τ_1		τ_2		τ_3	
[ ]	[ ]	1	2	1	3	1	4
[ ]		3		2		2	
[ ]		4		4		3	

Considerando só comutatividade obtemos a matriz escalonada

$$
\left|\begin{array}{ccc|ccc|ccc|ccc}
 & T_1 & & & T_2 & & & T_3 & & & T_4 & \\
1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & -2 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{array}\right|
$$

Considerando agora todas as identidades obtemos

$$
\left|\begin{array}{ccc|ccc|ccc|ccc}
 & T_1 & & & T_2 & & & T_3 & & & T_3 & \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{array}\right|
$$

O único novo degrau (que não envolve o homomorfismo w) corresponde ao tipo de associação T_3 na linha

$$0 \quad 0 \quad 1.$$

Consideramos então a matriz

$$\begin{array}{c} T_3 \\ \begin{matrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 1 \end{matrix} \end{array}$$

A identidade é dada por

$$(AA \cdot A)A$$

$$S_{33}\epsilon_3$$

onde $S_{33} = I$. Os conjuntos P e Q são aqui

$$P = \{I, (14)\}, \; Q = \{I, (12), (13), (23), (123), (132)\}.$$

A identidade é dada então por

$$\phi = \{I + (14)\}\{I - (12) - (13) - (23) + (123) + (132)\}.$$

A forma polinomial da identidade é

$$(\grave{T}_3)_\phi(a, b, c, d)$$

$$= (bd \cdot c)a - (ad \cdot c)b - (db \cdot a)c - (cd \cdot b)a + (ad \cdot b)c + (cd \cdot a)b$$

$$= (a, cd, b) + (c, bd, a) + (b, ad, c) = 0.$$

A representação correspondente ao último diagrama (ver seção 1) não fornece novos degraus. Obtemos assim o seguinte teorema:

Teorema 5. As identidades minimais satisfeitas por uma álgebra de Bernstein normal tem grau quatro e são:

$$x^2x^2 = x^4, \tag{3}$$

$$3yx^2 \cdot x = 2(yx \cdot x)x + yx^3, \tag{4}$$

$$2(xy)^2 = x^2y \cdot y + y^2x \cdot x, \tag{5}$$

$$(x, yz, t) + (z, yt, x) + (t, yx, z) = 0. \tag{6}$$

Observação. A identidade (3) é uma consequência imediata de (5). As identidades (4), (5) e (6) são independentes no sentido de que duas delas não implicam a terceira. Qualquer outra identidade de grau quatro satisfeita por todas as álgebras de Bernstein normais pode ser obtida a partir de (4), (5) e (6).

Referências: [C-3], [H-1], [W-2].

4. Identidades minimais em álgebras de Bernstein excepcionais

Na seção 5 do capítulo I provamos que uma álgebra de Bernstein A é excepcional se e somente se satisfaz a identidade

$$(ab)^2 = w(ab)ab \quad (\forall a, b \in A).$$

Observamos aqui que fazendo $a = b$ nesta identidade obtemos a identidade (1) do capítulo I, que define as álgebras ponderadas que são de Bernstein. Linearizando totalmente esta identidade obtemos

$$\begin{aligned} h(a,b,c,d) = 2ab \cdot cd + 2ad \cdot cb - w(ab)cd - w(ad)cb \\ -w(cb)ad - w(cd)ab = 0. \end{aligned} \tag{7}$$

Os tipos de associação envolvidos nesta identidade são dois, a saber:

$$T_1 = W(AA)AA, \quad T_2 = AA \cdot AA.$$

Usando a lei comutativa estes tipos induzem quatro identidades que são:

$$\begin{array}{cc} T_1 & T_2 \\ w(ab)cd - w(ba)cd = 0, & ab \cdot cd - ba \cdot cd = 0, \\ w(ab)cd - w(ab)dc = 0, & ab \cdot cd - cd \cdot ab = 0. \end{array} \tag{8}$$

Temos assim um total de cinco identidades de grau quatro satisfeitas por qualquer álgebra de Bernstein excepcional. As identidades (7) e (8) correspondem às identidades 5 e 1 a 4 da tábua II.

tábua 11

1	1	abcd	1
1	1	bacd	-1
2	1	abcd	1
2	1	abdc	-1
3	2	abcd	1
3	2	bacd	-1
4	2	abcd	1
4	2	cdab	-1
5	2	abcd	2
5	2	adcb	2
5	1	abcd	-1
5	1	adcb	-1
5	1	bcad	-1
5	1	cdab	-1

Quando consideramos somente as identidades (8) provenientes da comutatividade e em seguida todas as identidades, isto é, (7) e (8), nenhuma representação apresenta novos degraus nas colunas correspondentes aos tipos de associação que não envolvem w (tábua 5 do apêndice). Logo, não existem identidades de grau quatro. Estudamos agora as identidades de grau cinco. A partir da identidade (7) obtemos três identidades de grau cinco:

$$\begin{aligned} &h(a\epsilon, b, c, d) = 0, \qquad h(a, b, c, d)\epsilon = 0, \\ &h(a, b, c, d)w(\epsilon) = 0. \end{aligned} \tag{9}$$

Os tipos de associação envolvidos nestas identidades são cinco:

$$T_1 = W(A)AA \cdot AA, \qquad T_4 = (AA \cdot AA)A,$$
$$T_2 = W(AA)AA \cdot A. \qquad T_5 = (AA \cdot A) \cdot AA.$$
$$T_3 = W(AAA)AA.$$

Encontramos agora as identidades implicadas pela comutatividade para cada um destes tipos de associação. Temos:

$$\begin{array}{ll}
T_1 & T_4 \\
w(a)bc \cdot de - w(a)cb \cdot de = 0, & (ab \cdot cd)e - (ba \cdot cd)e = 0, \\
w(a)bc \cdot de - w(a)de \cdot bc = 0, & (ab \cdot cd)e - (cd \cdot ab)e = 0, \\
 & \\
T_2 & T_5 \\
w(ab)cd \cdot e - w(ba)cd \cdot e = 0, & (ab \cdot c) \cdot de - (ba \cdot c) \cdot de = 0, \\
w(ab)cd \cdot e - w(ab)dc \cdot e = 0, & (ab \cdot c) \cdot de - (ab \cdot c) \cdot ed = 0, \\
T_3 & \\
w(ab \cdot c)de - w(ba \cdot c)de = 0, & \\
w(ab \cdot c)de - w(ab \cdot c)ed = 0, & \\
w(abc)de - w(acb)de. &
\end{array} \tag{10}$$

Usando a representação de S_5 (seção 1 do apêndice), para cada representação encontramos a matriz escalonada considerando só as identidades (10) e em seguida, todas as identidades, isto é, (9) e (10). A única representação que fornece novos degraus é a dada

pelo diagrama

$$\begin{array}{cccccc} [\,] & [\,] & 1\ 2 & 1\ 3 & 1\ 2 & 1\ 3 & 1\ 4 \\ [\,] & [\,] & 3\ 4 & 2\ 4 & 3\ 5 & 2\ 5 & 2\ 5 \\ [\,] & & 5 & 5 & 4 & 4 & 3 \end{array}$$

O novo degrau é dado pela matriz

$$\begin{array}{ccccc} & & T_4 & & \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{array} \qquad \begin{array}{ccccc} & & T_5 & & \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 6 & 0 \end{array}$$

De acordo com o teorema 4, para escrever a identidade temos que encontrar as matrizes $A_I^{-1}E_{55}A_I^{-1}$ e $A_I^{-1}E_{45}A_I^{-1}$. Temos que

$$A_I^{-1} = \begin{bmatrix} 1 & 0 & 0 & 0 & -1 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}.$$

Logo

$$A_I^{-1}E_{55}A_I^{-1} = \begin{bmatrix} 0 & 0 & 0 & 0 & -1 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}, \quad A_I^{-1}E_{45}A_I^{-1} = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}.$$

Assim temos que a identidade é dada por

$$\begin{array}{cc} (AA \cdot AA)A & (AA \cdot A) \cdot AA \\ -S_{15}\epsilon_5 + \epsilon_5 & 6S_{45}\epsilon_5 \end{array}$$

Se $H = \{I + (14)\}\{I + (25)\}\{I - (12)\}\{I + (123) + (132)\}\{I - (45)\}$ então a identidade é dada por

$$\begin{array}{cc} (AA \cdot AA)A & (AA \cdot A) \cdot AA \\ \{I - (2354)\}H & 6(34)H \end{array}$$

Portanto, se

$$\phi_1 = \{I - (2354)\}H$$

e

$$\phi_2 = 6(34)H,$$

então a forma polinomial da identidade é dada por

$$(\tilde{T}_4)_{\phi_1}(a, b, c, d, e) + (\tilde{T}_5)_{\phi_2}(a, b, c, d, e) = 0.$$

A forma simplificada desta identidade é

$$(ac, bd, e) + (ad, be, c) + (ae, bc, d)$$

$$+(c, bd, ae) + (d, be, ac) + (e, bc, ad)$$

$$+(c, a, d) \cdot be + (d, a, e) \cdot bc + (e, a, c) \cdot bd = 0.$$

Temos assim o seguinte

Teorema 6. A identidade minimal satisfeita pelas álgebras de Bernstein excepcionais é

$$(ac, bd, e) + (ad, be, c) + (ae, bc, d)$$

$$+(c, bd, ae) + (d, be, ac) + (e, bc, ad)$$

$$+(c, a, d) \cdot be + (d, a, e) \cdot bc + (e, a, c) \cdot bd = 0.$$

Observação. Qualquer outra identidade de grau 5 satisfeita pelas álgebras de Bernstein excepcionais pode ser obtida a partir desta identidade.

Referências: [C-3], [H-1], [W-2].

5. Identidades minimais em álgebras de Bernstein nucleares

No capítulo I vimos que toda álgebra de Bernstein nuclear satisfaz a identidade (26). Linearizando completamente esta identidade obtemos

$$h(a, b, c, d) = 4(bc \cdot d)a + 4(bc \cdot a)d + 4(bd \cdot c)a + 4(ab \cdot c)d$$

$$+4(bd \cdot a)c + 4(ab \cdot d)c + 4(cd \cdot b)a + 4(ac \cdot b)d + 4(ad \cdot b)c$$

$$+4(dc \cdot a)b + 4(ac \cdot d)b + 4(ad \cdot c)b - 6w(b)cd \cdot a - 6w(b)ac \cdot d$$

$$-6w(b)ad \cdot c - 6w(c)bd \cdot a - 6w(c)ab \cdot d - 6w(d)bc \cdot a - 6w(a)bc \cdot d$$

$$-6w(d)ab \cdot c - 6w(a)bd \cdot c - 6w(a)cd \cdot b - 6w(d)ac \cdot b - 6w(a)cd \cdot b$$

$$+4w(bc)ad+4w(bd)ac+4w(ab)cd+4w(cd)ab+4w(ac)bd+4w(ad)bc = 0. \tag{11}$$

Devemos considerar agora a identidade (1) do capítulo I, que define as álgebras ponderadas que são de Bernstein. A linearização desta identidade é

$$g(a,b,c,d) = 2ab \cdot cd + 2ac \cdot bd + 2ad \cdot bc - w(ab)cd$$

$$-w(cd)ab - w(ac)bd - w(bd)ac - w(ad)bc - w(bc)ad = 0. \quad (12)$$

Os tipos de associação envolvidos nas identidades (11) e (12) são os seguintes:

$$T_1 = W(A)AA \cdot A, \qquad T_3 = (AA \cdot A)A,$$
$$T_2 = W(AA)AA, \qquad T_4 = AA \cdot AA.$$

As identidades induzidas pela comutatividade para estes tipos de associação são as identidades 1 a 6 da tábua 7-a) do apêndice. As identidades (11) e (12) correspondem às identidades 7 e 8 dessa tábua. Se consideramos somente estas seis identidades e em seguida as oito identidades, para cada representação, as matrizes não apresentam novos degraus que não envolvam o homomorfismo w (tábua 7-b) do apêndice). Portanto não existem identidades de grau quatro para a classe de álgebras definida por (26) e pela identidade (1) do capítulo I. Vejamos então as identidades de grau cinco. A identidade (11) fornece três identidades de grau cinco, a saber

$$h(a,b,c,d) \cdot e = 0, \quad h(a,b,c,d) \cdot w(e) = 0, \quad h(a,b,c,de) = 0. \quad (13)$$

Estas identidades correspondem as identidades 15, 16 e 17 da tábua 8-a) do apêndice. Por outro lado a identidade (12) induz três identidades de grau cinco que são:

$$g(a,b,c,d)e = 0, \quad g(a,b,c,de) = 0, \quad g(a,b,c,d)w(e) = 0. \quad (14)$$

Estas identidades correspondem às identidades 18 a 20 da tábua 8-a) do apêndice. As identidades (13) e (14) envolvem sete tipos de associação:

$$\begin{aligned} T_1 &= W(A)(AA \cdot A)A, & T_5 &= ((AA \cdot A)A)A, \\ T_2 &= W(AA)AA \cdot A, & T_6 &= (AA \cdot A)(AA), \\ T_3 &= W(A)AA \cdot AA, & T_7 &= (AA \cdot AA)A. \\ T_4 &= W(AAA)AA, \end{aligned} \tag{15}$$

Da lei comutativa, estes tipos de associação induzem as identidades 1 a 14 da tábua 8-a) do apêndice. Se consideramos primeiro as identidades 1 a 14 e depois todas as identidades (vinte no total), vemos da tábua 8-b) do apêndice que o único degrau novo é dado pela representação correspondente ao diagrama [ ][ ][ ][ ][ ]. A matriz correspondente às identidades provenientes da comutatividade é a matriz nula. No entanto, quando consideramos todas as identidades a matriz escalonada é

T_1	T_2	T_3	T_4	T_5	T_6	T_7
1	0	0	0	0	1	-2
0	1	0	0	0	0	-1
0	0	0	1	0	-2	1
0	0	0	0	1	$\frac{3}{2}$	$\frac{-5}{2}$

O único degrau novo que não contém os tipos que envolvem o homomorfismo w corresponde à última linha. A identidade fornecida por esta linha é

$$2a^5 + 3a^2a^3 - 5a^2a^2 \cdot a = 0.$$

Usando o teorema 9 do capítulo I podemos então enunciar o

Teorema 7. A variedade definida pela identidade

$$2x^5 + 3x^2x^3 - 5x^2x^2 \cdot x = 0$$

é a menor variedade de álgebras que contem a classe das álgebras de Bernstein que satisfazem

$$2x^4 - 3w(x)x^3 + w(x)^2x^2 = 0.$$

A classe das álgebras de Bernstein nucleares está contida nesta variedade.

Referências: [C-3], [G-2], [H-1], [M], [P-1].

6. Identidades minimais em álgebras de Bernstein

Seja A uma álgebra de Bernstein arbitrária. A identidade minimal das álgebras de Bernstein no caso excepcional tem grau 5. Por outro lado, toda álgebra de Bernstein satisfaz a identidade $(x^2x^2, y, x^2) = 0$. Logo o grau das identidades minimais de A deve ser 5, 6 ou 7. Para uma álgebra de Bernstein arbitrária as identidades de grau 5 devem ser consequência da comutatividade e as identidades (14). Os tipos de associação envolvidos nestas identidades são T_3, T_2, T_4, T_7 e T_6 de (15). As identidades induzidas pela comutatividade para estes tipos correspondem às identidades

4 a 14 da tábua 9-a) do apêndice. As matrizes correspondentes a estas identidades e a todas as identidades estão na tábua 9-b) do apêndice. Observamos que o posto dos dois blocos de matrizes é o mesmo para todas as representações no que diz respeito aos tipos de associação que não envolvem w. Portanto não existem identidades de grau 5 satisfeitas por todas as álgebras de Bernstein. As identidades de grau seis induzidas pela identidade (12) são:

$$g(a,b,c,d)e \cdot f = 0, \qquad g(a,b,ce,df) = 0,$$
$$g(a,b,c,d) \cdot ef = 0, \qquad g(a,b,c,de)f = 0,$$
$$g(a,b,c,de \cdot f) = 0, \qquad w(f)g(a,b,c,de) = 0$$
$$w(f)g(a,b,c,d)e = 0, \qquad w(ef)g(a,b,c,d) = 0.$$

Estas identidades correspondem às identidades 27 a 34 da tábua 10-a) do apêndice. Os tipos de associação envolvidos são:

$$T_1 = W(A)(AA \cdot AA)A, \qquad T_2 = W(A)(AA \cdot A)(AA),$$
$$T_3 = W(AA)(AA \cdot A)A, \qquad T_4 = W(AA)AA \cdot AA,$$
$$T_5 = W(AAA)AA \cdot A, \qquad T_6 = W(AAAA)AA,$$
$$T_7 = (AA \cdot AA)A \cdot A, \qquad T_8 = (AA \cdot AA) \cdot AA,$$
$$T_9 = (AA \cdot A)A \cdot AA, \qquad T_{10} = (AA \cdot A)(AA \cdot A),$$
$$T_{11} = ((AA \cdot A) \cdot AA)A.$$

As identidades induzidas pela comutatividade para estes tipos correspondem às identidades 1 a 26 da tábua 10-a) do apêndice. Temos assim um total de 34 identidades. Se consideramos somente as identidades fornecidas pela comutatividade, para a primeira representação correspondente ao diagrama [ ][ ][ ][ ][ ][ ] obtemos a matriz nula. Considerando agora todas as identidades e somente as

colunas correspondentes aos tipos que não envolvem w temos a matriz

$$\begin{array}{ccccc} T_7 & T_8 & T_9 & T_{10} & T_{11} \\ 1 & 0 & 0 & 1 & -2 \\ 0 & 1 & -2 & -1 & 2 \end{array}$$

Como nos casos anteriores, estas identidades podem ser escritas diretamente da matriz. Obtemos então as identidades

$$(x^2x^2 \cdot x)x + x^3x^3 - 2x^3x^2 \cdot x = 0$$

e

$$x^2x^2 \cdot x^2 - 2x^4x^2 - x^3x^3 + 2x^3x^2 \cdot x = 0.$$

Podemos escrever a primeira identidade de maneira mais abreviada como

$$(x^2, x^2, x)x - (x^3, x^2, x) = 0. \tag{16}$$

Somando as duas identidades temos

$$(x^2, x^2, x)x + (x^2, x^3, x) - (x^2, x, x)x^2 = 0. \tag{17}$$

Além da primeira, a única representação que fornece novas identidades é a segunda como pode ser visto nas tábuas 10-b) do apêndice. A segunda representação corresponde ao diagrama

$$\begin{array}{ccccc} [\,] & [\,] & [\,] & [\,] & [\,] \\ [\,] & & & & \end{array}$$

A matriz escalonada correspondente a esta representação tem quatro degraus novos. Usando o teorema 4 podemos obter uma identidade a partir de sua representação matricial. Aqui, no entanto, vamos

usar um argumento mais eficiente. O número de variáveis que tem cada identidade corresponde ao número de linhas que tem o tableau correspondente. Assim as identidades que estamos procurando são do tipo [5,1]. Estas identidades devem ser consequência do conjunto de todas as identidades de grau seis que contém cinco variáveis iguais e uma diferente, e que podem ser obtidas a partir da comutatividade e da identidade (1) do capítulo I, isto é, a identidade

$$B(x) = x^2x^2 - w(x)^2x^2 = 0.$$

Multiplicando por $x, y, w(x), w(y), xy$ e $w(xy)$ obtemos seis identidades, a saber

$$\begin{aligned} &B(x)x \cdot y = 0, && B(x)y \cdot x = 0, \\ &B(x) \cdot xy = 0, && B(x)w(y)x = 0, \\ &B(x)w(x)y = 0, && B(x)w(x)w(y) = 0. \end{aligned} \tag{18}$$

Usando agora linearizações obtemos mais quatorze identidades:

$$\begin{aligned} &B(x)\delta_x^1(x^2)y = 0, && B(x)\delta_x^1(x^2)w(y) = 0, \\ &B(x)\delta_x^1(y)x \cdot x = 0, && B(x)\delta_x^1(y)x^2 = 0, \\ &B(x)\delta_x^1(y)w(x)x = 0, && B(x)\delta_x^1(y)w(x)^2 = 0, \\ &B(x)\delta_x^1(y)\delta_x^1(x^2)x = 0, && B(x)\delta_x^1(y)\delta_x^1(x^2)w(x) = 0, \\ &B(x)\delta_x^1(y)\delta_x^2(x^2) = 0, && B(x)\delta_x^1(y)\delta_x^1(x^3) = 0, \\ &B(x)\delta_x^1(xy)x = 0, && B(x)\delta_x^1(xy)w(x) = 0, \\ &B(x)\delta_x^1(y)\delta_x^1(x^2)\delta_y^1(xy) = 0, && B(x)\delta_x^1(yx \cdot x) = 0, \\ &B(x)\delta_x^1(yx^2) = 0. \end{aligned} \tag{19}$$

Usando a comutatividade quando necessário, podemos verificar que estas identidades envolvem termos dos seguintes tipos:

$$
\begin{array}{ll}
t_1 = w(y)x^2x^2 \cdot x, & t_2 = w(x)(yx \cdot x^2)x, \\
t_3 = w(x)x^2x^2 \cdot y, & t_4 = w(y)x^3x^2, \\
t_5 = w(x)(yx \cdot x)x^2, & t_6 = w(x)x^2y \cdot x^2, \\
t_7 = w(x)x^3 \cdot yx, & t_8 = w(yx)x^4, \\
t_9 = w(x)^2(yx \cdot x)x, & t_{10} = w(x)^2x^2y \cdot x, \\
t_{11} = w(x)^2x^3y, & t_{12} = w(yx)x^2x^2, \\
t_{13} = w(x)^2yx \cdot x^2, & t_{14} = w(yx^2)x^3, \\
t_{15} = w(x)^3yx \cdot x, & t_{16} = w(x)^3x^2y, \\
t_{17} = w(yx^3)x^2, & t_{18} = w(x)^4yx, \\
t_{19} = (yx \cdot x^2)x \cdot x, & t_{20} = (x^2x^2 \cdot y)x, \\
t_{21} = (x^2x^2 \cdot x)y, & t_{22} = (yx \cdot x^2)x^2, \\
t_{23} = x^2x^2 \cdot yx, & t_{24} = (yx \cdot x)x \cdot x^2, \\
t_{25} = (x^2y \cdot x)x^2, & t_{26} = x^3y \cdot x^2, \\
t_{27} = x^4 \cdot yx, & t_{28} = (yx \cdot x)x^3, \\
t_{29} = x^2y \cdot x^3, & t_{30} = (yx \cdot x)x^2 \cdot x, \\
t_{31} = (x^2y \cdot x^2)x, & t_{32} = (x^3 \cdot yx)x, \\
t_{33} = x^3x^2 \cdot y. &
\end{array}
$$

Agora, consideramos as identidades (18) e (19) como um sistema de equações lineares nas indeterminadas $t_1, \ldots, t_{33}$. Escalonando a matriz deste sistema obtemos:

t_{19}	t_{20}	t_{21}	t_{22}	t_{23}	t_{24}	t_{25}	t_{26}	t_{27}	t_{28}	t_{29}	t_{30}	t_{31}	t_{32}	t_{33}
0	0	0	0	−1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	2	0	−1	−1	−2	−2	−1	0	1	2	1
0	0	0	0	−2	0	1	1	2	0	1	0	−1	−2	−1
0	0	0	0	−2	0	1	1	2	2	−1	0	−1	−2	−1
0	0	0	0	2	−2	−1	−1	−2	−2	−1	2	1	2	1
0	0	0	0	99	2	1	1	2	2	1	−2	−1	−2	−1
1	0	0	0	0	51	52	0	0	1	0	51	51	−1	0
0	1	0	0	−2	2	−1	1	2	2	1	−2	−1	−2	−1
0	0	1	0	2	0	−1	−1	−2	−2	1	0	1	2	−1
0	0	0	1	52	−1	51	51	−1	−1	51	1	52	1	52

(consideramos somente as colunas correspondentes aos tipos que não envolvem o homomorfismo w e as últimas dez linhas da matriz). Observamos que aparecem quatro degraus. Estes degraus são determinados pelas identidades

$$(x^2\cdot yx)x\cdot x-\frac{1}{2}(yx\cdot x)x\cdot x^2+\frac{1}{2}(yx^2\cdot x)x^2+(yx\cdot x)x^3-\frac{1}{2}(yx\cdot x)x^2\cdot x$$
$$-\frac{1}{2}(yx^2\cdot x^2)x-(yx\cdot x^3)x=0, \tag{20}$$

$$(x^2x^2)y\cdot x-2x^2x^2\cdot yx+2(yx\cdot x)x\cdot x^2-(yx^2\cdot x)x^2+yx^3\cdot x^2$$
$$+2x^4\cdot yx+2(yx\cdot x)x^3+yx^2\cdot x^3-2(yx\cdot x)x^2\cdot x-(yx^2\cdot x^2)x$$
$$-2(yx\cdot x^3)x-x^3x^2\cdot y=0. \tag{21}$$

$$(x^2x^2\cdot x)y+2x^2x^2\cdot yx-(yx^2\cdot x)x^2-yx^3\cdot x^2-2yx\cdot x^4$$
$$-2(yx\cdot x)x^3+yx^2\cdot x^3+(yx^2\cdot x^2)x+2(yx\cdot x^3)x-x^3x^2\cdot y=0, \tag{22}$$

$$(yx\cdot x^2)x^2+\frac{1}{2}x^2x^2\cdot yx-(yx\cdot x)x\cdot x^2-\frac{1}{2}(yx^2\cdot x)x^2-\frac{1}{2}yx^3\cdot x^2$$

$$-yx\cdot x^4-(yx\cdot x)x^3-\frac{1}{2}yx^2\cdot x^3+(yx\cdot x)x^2\cdot x+\frac{1}{2}(yx^2\cdot x^2)x+(yx\cdot x^3)x$$
$$+\frac{1}{2}x^3x^2\cdot y=0. \tag{23}$$

Se fazemos a soma das identidades (21) e (22) obtemos a identidade

$$H(x,y)=(y,x^2x^2,x)-2(yx^2,x,x^2)+2y(x^2,x^2,x)+2(x,yx\cdot x,x^2)=0. \tag{24}$$

Se multiplicamos (23) por 2 e somamos isto com a identidade (21) obtemos a identidade

$$(x^2x^2,y,x)-2(x^2,y,x)x^2=0. \tag{25}$$

Multiplicando a identidade (20) por 2 obtemos a identidade

$$G(x,y)=(x,yx^2,x^2)-(x,yx\cdot x,x^2)-2(x^3,yx,x)+2(x^2,yx,x)x=0. \tag{26}$$

Se fazemos $x=y$ em (26) obtemos a identidade (16). Por outro lado linearizando (17) obtemos

$$2(yx,x^2,x)x+2(x^2,yx,x)x+(x^2,x^2,y)x+(x^2,x^2,x)y$$
$$+2(yx,x^3,x)+2(x^2,yx\cdot x,x)+(x^2,yx^2,x)+(x^2,x^3,y)$$
$$-2(yx,x,x)x^2-(x^2,y,x)x^2-(x^2,x,y)x^2-2(x^2,x,x)\cdot yx=0.$$

Esta identidade é igual à soma das identidades (21), (22), (23) e (24). Assim as identidades (16) e (17) são consequência das outras identidades encontradas. Veremos agora que as identidades (24) e (26) são equivalentes. Linearizando (24) obtemos

$$H(x,y)\delta_x^1(z)\delta_y^1(x)$$

$$= 4(x, zx \cdot x^2, x) + (x, x^2x^2, z) - 4(zx \cdot x, x, x^2) - 2(x^3, z, x^2)$$
$$-4(x^3, x, xz) + 4x(xz, x^2, x) + 4x(x^2, xz, x) + 2x(x^2, x^2, z)$$
$$+2(z, x^3, x^2) + 2(x, zx \cdot x, x^2) + 2(x, x^2z, x^2) + 4(x, x^3, xz) = 0. \quad (27)$$

e segue então que

$$H(x,y)\delta_x^1(z)\delta_y^1(x) - H(x,z) = 4G(x,z) \quad (\forall x, z \in A).$$

Analogamente obtemos que

$$G(x,y)\delta_x^1(z)\delta_y^1(x) - 3G(x,z) = 2\dot{H}(x,z) \quad (\forall\, x, z \in A).$$

Assim as identidades (24) e (26) são equivalentes. Temos portanto o seguinte teorema:

Teorema 8. As identidades minimais satisfeitas por todas as álgebras de Bernstein são:

$$(x^2x^2, y, x) - 2(x^2, y, x)x^2 = 0,$$
$$(x, yx^2, x^2) - (x, yx \cdot x, x^2) - 2(x^3, yx, x) + 2(x^2, yx, x)x = 0.$$

Observação. Qualquer outra identidade de grau seis satisfeita por todas as álgebras de Bernstein pode ser obtida a partir destas duas identidades. Outra prova de que toda álgebra de Bernstein satisfaz as identidades do teorema 8 pode ser obtida usando a fórmula generalizada das identidades (7) e (8) do capítulo 1, a saber, que para todo $i, j \geq 2$ temos

$$2x^ix^j = w(x)^ix^j + w(x)^jx^i.$$

Referências: [C-3], [H-1].

CAPÍTULO III

ÁLGEBRAS COMUTATIVAS QUE SATISFAZEM UMA IDENTIDADE DE GRAU 6

Neste capítulo estudaremos as álgebras comutativas que satisfazem uma das identidades (25) ou (26) do capítulo II. Vamos supor sempre as álgebras sobre um corpo F de característica zero. Vamos assumir ainda que as álgebras contem um elemento idempotente não-trivial ϵ. Denotaremos por L_ϵ o operador multiplicação à esquerda por ϵ.

1. A Identidade $(x^2x^2, y, x) - 2(x^2, y, x)x^2 = 0$

Seja A uma álgebra comutativa (não necessariamente de dimensão finita) sobre um corpo F de característica zero, que satisfaz

a identidade

$$(x^2x^2, y, x) - 2(x^2, y, x)x^2 = 0. \qquad (1)$$

Linearizando esta identidade obtemos

$$4(xz \cdot x^2, y, x) + (x^2x^2, y, z) - 4(xz, y, x)x^2$$

$$-2(x^2, y, z)x^2 - 4(x^2, y, x) \cdot xz = 0 \qquad (2)$$

e

$$4(wz \cdot x^2, y, x) + 8(xz \cdot xw, y, x) + 4(xz \cdot x^2, y, w)$$

$$+4(xw \cdot x^2, y, z) - 4(wz, y, x)x^2 - 4(xz, y, w)x^2 - 8(xz, y, x) \cdot xw$$

$$-4(xw, y, z)x^2 - 4(x^2, y, z) \cdot xw - 8(xw, y, x) \cdot xz - 4(x^2, y, w) \cdot xz$$

$$-4(x^2, y, x) \cdot wz. \qquad (3)$$

Suponhamos que A contem um idempotente não-trivial ϵ. Fazendo $x = y = \epsilon$ em (2) obtemos

$$4(\epsilon \cdot \epsilon z, \epsilon, \epsilon) + (\epsilon, \epsilon, z) - 4(\epsilon z, \epsilon, \epsilon)\epsilon - 2(\epsilon, \epsilon, z)\epsilon = 0.$$

Logo o operador $L_\epsilon : A \to A$, satisfaz

$$2L_\epsilon^3 - 3L_\epsilon^2 + L_\epsilon = 0$$

e portanto

$$L_\epsilon(L_\epsilon - I)(L_\epsilon - \frac{1}{2}I) = 0.$$

Assim, temos a decomposição de Peirce de A relativa ao idempotente ϵ :

$$A = A_1 \oplus A_{\frac{1}{2}} \oplus A_0,$$

onde $A_\lambda = \{x \in A : L_\epsilon(x) = \lambda x\}$.

Lema 1. Os subespaços A_λ verificam as seguintes relações:

$$A_1^2 \subset A_1, \qquad A_{\frac{1}{2}}^2 \subset A_1 \oplus A_0, \qquad A_0^2 \subset A_{\frac{1}{2}} \oplus A_0,$$
$$A_1 A_{\frac{1}{2}} \subset A_{\frac{1}{2}}, \qquad A_1 A_0 = 0, \qquad A_{\frac{1}{2}} A_0 \subset A_{\frac{1}{2}}.$$

Prova. Fazendo $x = e$ em (2) obtemos

$$4(L_e^2(z), y, e) + (e, y, z) - 4(L_e(z), y, e)e - 2(e, y, z)e = 0.$$

Suponhamos que $z \in A_{\lambda_z}$ e $y \in A_{\lambda_y}$. Então podemos escrever a expressão anterior como

$$\{2(1 - 2\lambda_z)L_e^2 + 2(2\lambda_z - 1)(\lambda_z + \lambda_y + \frac{1}{2})L_e + \lambda_y(1 - 4\lambda_z^2)\}(yz) = 0.$$

Fazendo λ_z e λ_y igual a 1, $\frac{1}{2}$ e 0 de todas as formas possíveis e usando a comutatividade de A, temos o resultado para $\lambda_y, \lambda_z \neq \frac{1}{2}$. Para obter que $A_{\frac{1}{2}}^2 \subset A_1 \oplus A_0$ fazemos $x = y = e$ e supomos que $w, z \in A_{\frac{1}{2}}$ em (3) para obter que

$$L_e(I - L_e)(wz) = 0$$

de onde o resultado segue.

O seguinte lema fornece relações envolvendo produtos de elementos dos diferentes subespaços A_λ. Denotaremos o produto de dois elementos $k, t \in A$ como $kt = [kt]_1 + [kt]_{\frac{1}{2}} + [kt]_0$, onde $[kt]_\lambda$ é a componente em A_λ do produto kt e denotaremos por $h(y; x, z, u, v, w)$ a linearização completa da identidade (1).

Lema 2. Se $a, b \in A_1$, $h, i, j \in A_{\frac{1}{2}}$, $x, y \in A_0$ então:

$$h \cdot ab = ha \cdot b + hb \cdot a, \tag{4}$$

$$a \cdot ij = [i \cdot aj]_1 + [j \cdot ai]_1, \tag{5}$$

$$[x \cdot ij]_0 = [xi \cdot j]_0 + [xj \cdot i]_0, \tag{6}$$

$$[j \cdot ix]_1 = [i \cdot jx]_1, \tag{7}$$

$$[i \cdot aj]_0 = [j \cdot ai]_0, \tag{8}$$

$$a \cdot hx = ah \cdot x, \tag{9}$$

$$h[ij]_0 + i[hj]_0 + j[hi]_0 = h[ij]_1 + i[hj]_1 + j[hi]_1, \tag{10}$$

$$a^2 \cdot ba = a^2b \cdot a, \tag{11}$$

$$h[xy]_{\frac{1}{2}} = 0. \tag{12}$$

Prova. Usando o lema 1 obtemos que

$$h(i; a, j, e, e, e) = -a[ij]_1 + [i \cdot aj]_1 + [j \cdot ai]_1 - 2[i \cdot aj]_0 + 3[j \cdot ai]_0 = 0.$$

Usando agora o fato de que a soma dos subespaços A_λ é direta, obtemos

$$[i \cdot aj]_0 - [j \cdot ai]_0 = 0, \quad [i \cdot aj]_1 + [j \cdot ai]_1 - a[ij]_1 = 0.$$

Como $ij = [ij]_1 + [ij]_0$ e $A_0A_1 = 0$, temos que $a \cdot ij = a[ij]_1$. Assim,

$$a \cdot ij = [i \cdot aj]_1 + [j \cdot ai]_1.$$

Temos então as identidades (5) e (8). Por outro lado,

$$h(a; h, b, e, e, e) = h \cdot ab - ha \cdot b - hb \cdot a = 0,$$

de onde obtemos (4). Para obter (6) e (7) calculamos $h(i; x, j, e, e, e)$ obtendo que

$$[j \cdot ix]_1 - [j \cdot ix]_0 + [x[ij]_0]_0 - [i \cdot jx]_1 - [i \cdot jx]_0 = 0.$$

Como $x \cdot ij = x[ij]_1 + x[ij]_0$ e $A_0 A_1 = 0$, temos que

$$x \cdot ij = x[ij]_0$$

e o resultado segue. Para obter (10) calculamos

$$h(e; h, i, j, e, e) = -h \cdot ij - i \cdot hj - j \cdot hi - 2e(h \cdot ij) - 2e(i \cdot hj)$$

$$-2e(j \cdot hi) + 4h(e \cdot ij) + 4i(e \cdot hj) + 4j(e \cdot hi) + 4e(e(h \cdot ij))$$

$$+4e(e(i \cdot hj)) + 4e(e(j \cdot hi)) - 4e(h(e \cdot ij)) - 4e(i(e \cdot hj)) - 4e(j(e \cdot hi))$$

$$= -h[ij]_0 - h[ij]_1 - i[hj]_1 - i[hj]_0 - j[hi]_1 - j[hi]_0 - h[ij]_1$$

$$-h[ij]_0 - i[hj]_1 - i[hj]_0 - j[hi]_1 - j[hi]_0 + 4h[ij]_1 + 4[hj]_1$$

$$+4j[hi]_1 + 4[ij]_1 + h[ij]_0 + i[hj]_1 + i[hj]_0 + j[hi]_1 + j[hi]_0$$

$$-2h[ij]_1 - 2i[hj]_1 - 2j[hi]_1$$

$$= -h[ij]_0 + h[ij]_1 + i[hj]_1 - i[hj]_0 + j[hi]_1 - j[hi]_0 = 0,$$

de onde segue (10). Para obter (12) calculamos $h(h; x, y, e, e, e)$ para obter

$$e(h \cdot xy) - h(e \cdot xy) - 2e(e(h \cdot xy)) + 2(e(h(e \cdot xy))$$

$$= e(h[xy]_0) + e([h[xy]_{\frac{1}{2}}) - \frac{1}{2}h[xy]_{\frac{1}{2}} - 2e(e \cdot h[xy]_0)$$

$$-2e(e \cdot h[xy]_{\frac{1}{2}}) + e(h[xy]_{\frac{1}{2}})$$

$$= \frac{1}{2}h[xy]_0 + [h[xy]_{\frac{1}{2}}]_1 - \frac{1}{2}[h[xy]_{\frac{1}{2}}]_1 - \frac{1}{2}[h[xy]_{\frac{1}{2}}]_0$$
$$-\frac{1}{2}h[xy]_0 - 2[h[xy]_{\frac{1}{2}}]_1 + [h[xy]_{\frac{1}{2}}]_1$$
$$= \frac{1}{2}[h[xy]_{\frac{1}{2}}]_1 - \frac{1}{2}[h[xy]_{\frac{1}{2}}]_0 = 0.$$

Da relação $A_{\frac{1}{2}}A_{\frac{1}{2}} \subset A_1 \oplus A_0$, como

$$[h[xy]_{\frac{1}{2}}]_1 = 0, \quad [h[xy]_{\frac{1}{2}}]_0 = 0$$

temos que $h[xy]_{\frac{1}{2}} = 0$ e obtemos a identidade (12).

As relações (9) e (11) são obtidas respectivamente ao calcularmos $h(h; a, x, e, e, e) = 0$ e $h(b; a, a, a, e, e) = 0$.

Proposição 3. Seja A uma álgebra comutativa (não necessariamente de dimensão finita) sobre um corpo F de característica zero, que satisfaz a identidade (1) e contem um idempotente não-trivial e. Seja $A = A_1 \oplus A_{\frac{1}{2}} \oplus A_0$ a decomposição de Peirce relativa a e. Então o conjunto $L = \{u \in A_{\frac{1}{2}} : uA_{\frac{1}{2}} = 0\}$ é um ideal de A.

Prova. Sejam $u \in L$, $a \in A_1$, $j \in A_{\frac{1}{2}}$, $x \in A_0$. Usando as identidades (5)-(8) temos

$$ua \cdot j = [ua \cdot j]_1 + [ua \cdot j]_0 = uj \cdot a - [u \cdot aj]_1 + [u \cdot aj]_0 = 0$$

e

$$ux \cdot j = [ux \cdot j]_1 + [ux \cdot j]_0 = [u \cdot xj]_1 + [uj \cdot x]_0 - [u \cdot jx]_0 = 0.$$

Logo ua, $ux \in L$ e L é um ideal de A.

Uma álgebra é dita *semiprima* se o único ideal I que satisfaz $I^2 = 0$ é o ideal nulo.

Corolário. Seja A uma álgebra comutativa (não necessariamente de dimensão finita) sobre um corpo F de característica zero. Se A é semiprima e satisfaz a identidade (1) então $A_0^2 \subset A_0$.

Prova. De (12) temos que $[A_0^2]_{\frac{1}{2}} \subset L$. Por outro lado, como A é semiprima e $L^2 = 0$, temos que $L = 0$. O resultado segue agora do lema 1.

Referências: [C-3], [O-3].

2. Álgebras de Jordan

Proposição 4. Seja A uma álgebra comutativa com unidade (não necessariamente de dimensão finita) sobre um corpo F de característica zero e que satisfaz a identidade (1). Então A é de Jordan.

Prova. Fazendo $w = z = 1$ em (3) obtemos a identidade de Jordan.

Definamos as funções:

$$H(x;y,z,w) = (x \cdot yz)w + (x \cdot yw)z + (x \cdot wz)y$$

e

$$K(x,y,z,w) = xy \cdot zw + xz \cdot yw + xw \cdot yz.$$

Linearizando completamente a identidade de Jordan obtemos a igualdade

$$H(x;y,z,w) = K(x,y,z,w) \quad (\forall x,y,z,w \in A). \tag{13}$$

Assim, A é uma álgebra de Jordan se e somente se A satisfaz (13). Em nosso caso $A = A_1 \oplus A_{\frac{1}{2}} \oplus A_0$, logo, A é de Jordan se e somente se A satisfaz (13) para todas as possíveis escolhas de elementos $x,y,z,w \in A_1$, $A_{\frac{1}{2}}$, A_0.

Para as álgebras satisfazendo a identidade (1) temos o seguinte resultado:

Teorema 5. Seja A uma álgebra comutativa (não necessariamente de dimensão finita) sobre um corpo F de característica zero, que satisfaz a identidade (1) e contem um elemento idempotente não-trivial e. Seja $A = A_1 \oplus A_{\frac{1}{2}} \oplus A_0$ a decomposição de Peirce relativa a e. Então A é uma álgebra de Jordan se e somente se A_0 é uma subálgebra de Jordan e

$$j \cdot xy = jx \cdot y + jy \cdot x \quad (\forall x,y \in A_0, j \in A_{\frac{1}{2}}). \tag{14}$$

Prova. Se A é uma álgebra de Jordan então A_0 é uma

subálgebra. Da linearização da identidade de Jordan temos que

$$(x\cdot yz)w+(x\cdot yw)z+(x\cdot wz)y = xy\cdot zw+xz\cdot yw+xw\cdot yz \quad (\forall x,y,z,w \in A).$$

Fazendo aqui $z = e$, supondo que $x, y \in A_0$, $w \in A_{\frac{1}{2}}$ e usando as relações do lema 1, obtemos (14).

Reciprocamente, seja A uma álgebra tal que A_0 é uma subálgebra de Jordan e A satisfaz a condição (14). A idéia é provar que com as hipóteses do teorema a igualdade (13) é satisfeita por A. Vamos supor os elementos $a, b, c \in A_1$, $h, i, j, l \in A_{\frac{1}{2}}$ e $x, y \in A_0$.

Da identidade (11) do lema 2 segue que A_1 é uma álgebra de Jordan. Assim, vamos analizar quatro casos:

I. O caso em que os elementos pertencem todos ao subespaço $A_{\frac{1}{2}}$.

De (5), (10) e (7) temos que:

$$hi \cdot [jl]_1 + hj \cdot [il]_1 + hl \cdot [ij]_1$$

$$= [h[jl]_1 \cdot i + i[jl]_1 \cdot h]_1 + [h[il]_1 \cdot j + j[il]_1 \cdot h]_1 + [h[ij]_1 \cdot l + l[ij]_1 \cdot h]_1$$

$$= [h[jl]_1 \cdot i + i[jl]_0 \cdot h]_1 + [h[il]_1 \cdot j + j[il]_0 \cdot h]_1 + [h[ij]_1 \cdot l + l[ij]_0 \cdot h]_1$$

$$= [h[jl]_1 \cdot i + h[jl]_0 \cdot i]_1 + [h[il]_1 \cdot j + h[il]_0 \cdot j]_1 + [h[ij]_1 \cdot l + h[ij]_0 \cdot l]_1$$

$$= [(h \cdot jl)i + (h \cdot il)j + (h \cdot ij)l]_1.$$

Analogamente pela simetria das igualdades (7) e (8) temos que

$$hi \cdot [jl]_0 + hj \cdot [il]_0 + hl \cdot [ij]_0 = [(h \cdot jl)i + (h \cdot il)j + (h \cdot ij)l]_0$$

de onde

$$H(h;i,j,l) = K(h,i,j,l), \quad (\forall\ h,i,j,l \in A_{\frac{1}{2}}).$$

II. O caso que envolve somente elementos de A_1 e $A_{\frac{1}{2}}$.

Usando (4) temos que

$$K(h,a,b,c) = ha \cdot bc + hb \cdot ac + hc \cdot ab$$

$$= (b \cdot ha)c + (c \cdot ah)b + (a \cdot hb)c + (c \cdot hb)a + (a \cdot hc)b + (b \cdot hc)a$$

$$= (c \cdot hb + b \cdot hc)a + (c \cdot ha + a \cdot hc)b + (b \cdot ha + a \cdot hb)c$$

$$= (h \cdot bc)a + (h \cdot ac)b + (h \cdot ab)c = H(h;a,b,c).$$

Pela simetria do operador K nas quatro variáveis e a simetria de H nas últimas três variáveis, só falta estudar o caso $H(a;h,b,c)$. Usando (4) novamente temos que

$$H(a;h,b,c) = (a \cdot hb)c + (a \cdot bc)h + (a \cdot ch)b$$

$$= (h \cdot ab - b \cdot ah)c + (a \cdot bc)h + (h \cdot ac)b - (c \cdot ah)b$$

$$= (h \cdot ab)c + (h \cdot ac)b - (b \cdot ha)c - (c \cdot ah)b + (a \cdot bc)h$$

$$= (h \cdot ab)c + (h \cdot ac)b - cb \cdot ha + ah \cdot bc + a(h \cdot bc) = H(h;a,b,c)$$

e agora é claro que

$$H(a;h,b,c) = K(a,h,b,c).$$

Vejamos agora o caso que envolve dois elementos de $A_{\frac{1}{2}}$ e dois elementos em A_1. Temos

$$K(i,j,a,b) = ij \cdot ab + ia \cdot jb + ib \cdot aj$$

$$= \{ij \cdot ab - [(b \cdot aj)i]_1 - [(a \cdot bj)i]_1 + [ib \cdot aj + ai \cdot jb]_0\}$$

$$+\{[ib \cdot ja]_1 + [(b \cdot aj)i]_1\} + \{[ia \cdot jb]_1 + [(a \cdot bj)i]_1\}.$$

Usando (8), (4) e (5) temos que

$$\{ij \cdot ab - [(b \cdot aj)i]_1 - [(a \cdot bj)i]_1 + [ib \cdot aj + ai \cdot jb]_0\}$$

$$= ij \cdot ab - [(b \cdot aj)i + (a \cdot bj)i]_1 + [(b \cdot aj)i + (a \cdot bj)i]_0$$

$$= ij \cdot ab + [(j \cdot ab)i]_1 + [(j \cdot ab)i]_0$$

$$= [(i \cdot ab)j]_1 + [(j \cdot ab)i]_1 + [(j \cdot ab)i]_1 + [(i \cdot ab)j]_0 = (i \cdot ab)j.$$

Usando (4) temos

$$\{[ib \cdot aj]_1 + [(b \cdot aj)i]_1\} = (i \cdot aj)b$$

e

$$\{[ia \cdot bj]_1 + [(a \cdot bj)i]_1\} = (i \cdot bj)a.$$

Assim,

$$K(i, j, a, b) = H(i; j, a, b).$$

Usando agora (4), (5) e (8) mais o fato de que $A_0 A_1 = 0$ temos que

$$H(i; j, a, b) = (i \cdot ja)b + (i \cdot jb)a + (a \cdot ib)j + [(b \cdot ia)j]_1 + [(b \cdot ia)j]_0$$

$$= (i \cdot ja)b + (i \cdot jb)a + (a \cdot ib)j + [(a \cdot jb)i]_0 + (j \cdot ia)b - [bj \cdot ia]_1$$

$$= (i \cdot aj + j \cdot ai)b + (i \cdot jb)a + (a \cdot bi)j + [(a \cdot jb)i]_0 - [bj \cdot ia]_1$$

$$= [i \cdot aj + j \cdot ai]_0 b + [i \cdot aj + j \cdot ai]_1 b + (i \cdot jb)a + (a \cdot bi)j + [(a \cdot jb)i]_0 - [bj \cdot ia]_1$$

$$= (a \cdot ij)b + (a \cdot ib)j + (i \cdot jb)a + [(a \cdot jb)i]_0 - [bj \cdot ia]_1$$

$$= (a \cdot ij)b + (a \cdot ib)j + [ai \cdot jb]_1 + [(a \cdot jb)i]_1 + [(a \cdot jb)i]_0 - [bj \cdot ia]_1$$

$$= (a \cdot ij)b + (a \cdot ib)j + (a \cdot jb)i = H(a; i, j, b),$$

e logo

$$H(a; i, j, b) = K(a, i, j, b).$$

Para terminar este caso devemos ver o que sucede se temos um elemento em A_1 e três elementos em $A_{\frac{1}{2}}$. Temos que

$$K(a, i, j, h) = ai \cdot jh + aj \cdot hi + ah \cdot ij$$

$$= ai \cdot [jh]_1 + ai \cdot [jh]_0 + aj \cdot [hi]_1 + aj \cdot [hi]_0 + ah \cdot [ij]_1 + ah \cdot [ij]_0.$$

Usando (9) temos que isto é igual a

$$ai \cdot [jh]_1 + [jh]_0 i \cdot a + aj \cdot [hi]_1 + [hi]_0 j \cdot a + ah \cdot [ij]_1 + [ij]_0 h \cdot a.$$

De (10), (4) e usando $A_0 A_1 = 0$ temos então que $K(a, i, j, h)$ é igual a

$$ai \cdot [jh]_1 + [jh]_1 i \cdot a + aj \cdot [hi]_1 + [hi]_1 j \cdot a + ah \cdot [ij]_1 + [ij]_1 h \cdot a$$

$$= a[jh]_1 \cdot i + a[hi]_1 \cdot j + a[ij]_1 \cdot h$$

$$= (a \cdot jh)i + (a \cdot ih)i + (a \cdot ij)h = H(a; i, j, h).$$

Portanto

$$K(a, i, j, h) = H(a; i, j, h).$$

Por outro lado vemos que

$$H(i; a, j, h) = (i \cdot aj)h + (i \cdot jh)a + (i \cdot ah)j$$

$$= [i \cdot aj]_1 h + [i \cdot aj]_0 h + i[jh]_1 \cdot a + i[jh]_0 \cdot a + [i \cdot ah]_1 j + [i \cdot ah]_0 j$$

por (5), (8) e (9), isto é,

$$= (a \cdot ij)h - [j \cdot ai]_1 h + [j \cdot ai]_0 h + ai \cdot [jh]_0 + i \cdot [jh]_1 a$$

$$-[jh]_1 \cdot ai + (a \cdot hi)j - [h \cdot ai]_1 j + [h \cdot ai]_0 j.$$

De (10) temos que

$$[j \cdot ai]_0 h - [j \cdot ai]_1 h + [jh]_0 \cdot ai - [jh]_1 \cdot ai + [h \cdot ai]_0 j - [h \cdot ai]_1 j = 0,$$

e logo

$$H(i; a, j, h) = (a \cdot ij)h + [jh]_1 a \cdot i + (a \cdot hi)j$$

$$= (a \cdot ij)h + (a \cdot jh)i + (a \cdot hi)j = H(a; i, j, h).$$

Logo

$$H(i; a, j, h) = K(i, a, j.h).$$

Com isto completamos este caso.

III. O caso que envolve elementos de A_1 e A_0.

Como $A_0 A_1 = 0$, da hipótese $A_0^2 \subset A_0$ todos os produtos envolvendo elementos de A_0 e A_1 são nulos.

IV. O caso que envolve elementos de A_0 e $A_{\frac{1}{2}}$.

Para este caso observamos que $[A_0^2]_{\frac{1}{2}} = 0$ implica $[x \cdot ij]_{\frac{1}{2}} = 0$ e portanto $x \cdot ij = [x \cdot ij]_0$. Obtemos assim de (6) que

$$x \cdot ij = [xi \cdot j]_0 + [xj \cdot i]_0. \tag{15}$$

Assim, todas as identidades que envolvem elementos de A_0 e $A_{\frac{1}{2}}$ são semelhantes às identidades que envolvem elementos de A_1 e $A_{\frac{1}{2}}$. Portanto, este caso é análogo ao caso II.

V. Caso que envolve elementos de $A_1, A_{\frac{1}{2}}$ e A_0.

Para isto consideremos primeiramente o caso em que dois elementos estão em A_1, um elemento está em $A_{\frac{1}{2}}$ e um elemento está em A_0. Usando $A_0A_1 = 0$ e (9) temos que

$$K(h,x,a,b) = hx \cdot ab + ha \cdot bx + hb \cdot ax = hx \cdot ab$$

$$= (h \cdot ab)x = H(h;x,a,b).$$

Usando (9) novamente temos que

$$K(h,x,a,b) = H(a;x,h,b) = H(x;h,a,b).$$

Vejamos agora o caso em que dois elementos pertencem a A_0, um a A_1 e outro a $A_{\frac{1}{2}}$. Por um lado,

$$K(x,y,a,h) = xy \cdot ah + xa \cdot yh + ay \cdot xh = xy \cdot ah.$$

Por outro lado, usando (9) temos que

$$H(x;y,a,h) = (x \cdot yh)a + (x \cdot ya)h + (x \cdot ah)y$$

$$= (a \cdot yh)x + (x \cdot ah)y = (y \cdot ah)x + (x \cdot ah)y$$

Disto, usando (14), temos que

$$H(x;y,a,h) = xy \cdot ah = K(x,y,a,h).$$

Sabemos também que

$$(a \cdot xy)h = a[xy]_{\frac{1}{2}} \cdot h = [a[xy]_{\frac{1}{2}} \cdot h]_1 + [a[xy]_{\frac{1}{2}} \cdot h]_0$$

$$= a \cdot h[xy]_{\frac{1}{2}} - [ah \cdot [xy]_{\frac{1}{2}}]_1 + [ah \cdot [xy]_{\frac{1}{2}}]_0.$$

De (12) e (14) temos que

$$h[xy]_{\frac{1}{2}} = ah \cdot [xy]_{\frac{1}{2}} = 0.$$

Assim, de (9)

$$(a \cdot xy)h = 0$$

e portanto

$$H(a; h, x, y) = (a \cdot xh)y + (a \cdot yh)x.$$

Assim, de (9) e (14) obtemos que

$$H(a; h, x, y) = (x \cdot ah)y + (y \cdot ah)x$$

$$= xy \cdot ah = H(x; y, a, h).$$

Finalmente como $ah \cdot xy = ah \cdot [xy]_0$, temos que

$$H(h; a, x, y) = (h \cdot xy)a = h[xy]_0 \cdot a = ah \cdot [xy]_0 = ah \cdot xy.$$

Logo,

$$H(h; a, x, y) = H(x; y, a, h) = H(a; h, x, y).$$

Vejamos por último o caso em que dois elementos estão em $A_{\frac{1}{2}}$, um elemento está em A_0 e o outro em A_1. Temos

$$K(i, j, a, x) = ij \cdot ax + ai \cdot jx + ix \cdot aj$$

$$= [ia \cdot jx]_0 + [ia \cdot jx]_1 + [ix \cdot aj]_0 + [ix \cdot aj]_1$$

$$= [(a \cdot jx)i]_0 + [ix \cdot ja]_0 + [ia \cdot jx]_1 + [(x \cdot aj)i]_1.$$

Segue de (9), (15) e (5) que

$$K(i, j, a, x) = [(x \cdot aj)i]_0 + [ix \cdot aj]_0 + [ia \cdot jx]_1 + [(a \cdot xj)i]_1$$

$\neq A$. Da simplicidade de A, segue então que A_0 é isomorfa a uma subálgebra de E^+. Assim, Do teorema 5 segue que A é de Jordan.

Seja A uma álgebra de Jordan (não necessari- são finita) sobre um corpo de característica zero. A satisfaz a identidade (1) e que contem um el- nte não-trivial e tal que $dim(A_1) = 1$. Então o

$$H = \{a \in A : a(A_{\frac{1}{2}} \oplus A_0) = 0\}$$

$n = \alpha e + j_0 + x_0 \in H$. Só devemos provar que o, sejam $i \in A_{\frac{1}{2}}$, $x \in A_0$. Então:

$$) = (\alpha e + \frac{1}{2}j_0)(i + x) = \frac{\alpha}{2}i + \frac{1}{2}ij_0 + \frac{1}{2}j_0x.$$

$nx = 0$, temos que

$$\frac{\alpha}{2}i + ij_0 + ix_0 = 0$$

$$j_0x + x_0x = 0.$$

$A_{\frac{1}{2}}A_0 \subset A_{\frac{1}{2}}$ e $A_{\frac{1}{2}}^2 \subset A_1 \oplus A_0$, temos que $) = 0$, $xx_0 = 0$ e $j_0x = 0$ $(\forall i \in A_{\frac{1}{2}}, x \in A_0)$.

$$en \cdot (i + x) = \frac{\alpha}{2}i.$$

$= H(i; j, a, x)$.

$\cdot jx)i$

$; a, i, j)$.

$x \cdot ai]_1 + [(a \cdot xj)i]_1$

$j]_1 + [(a \cdot xj)i]_1$

$; i, j, x)$.

$x)i = H(x; a, i, j)$.

s casos possíveis exce- pertecem ao subespaço

de Jordan que satisfaz suficiente considerar o li·nensão finita que é de

Se $\alpha = 0$ o resultado é imediato. Suponhamos então que $\alpha \neq 0$. Como $\frac{\alpha}{2}i + ix_0 = 0$ temos que

$$\frac{\alpha}{2}ix_0 + ix_0 \cdot x_0 = 0.$$

Como $x_0^2 = 0$, de (14) segue que

$$2ix_0 \cdot x_0 = -ix_0^2 = 0.$$

Logo $ix_0 = 0$ e portanto $\frac{\alpha}{2}i = 0$. Segue que $\epsilon n \in H$, como queríamos provar.

3. Álgebras de Bernstein

No capítulo II mostramos que toda álgebra de Bernstein satisfaz a identidade (1). O seguinte teorema fornece condições necessárias e suficientes para que uma álgebra que satisfaz a identidade (1) seja de Bernstein. Para isto usaremos o teorema 1 do capítulo I.

Teorema 8. Seja A uma álgebra comutativa (não necessariamente de dimensão finita) sobre um corpo F de característica zero, que satisfaz a identidade (1) e contem um elemento idempotente não-trivial ϵ. Seja $A = A_1 \oplus A_{\frac{1}{2}} \oplus A_0$ a decomposição de Peirce relativa a ϵ. Então A é de Bernstein se e somente se $dim A_1 = 1$, $A_{\frac{1}{2}}^2 \subset A_0$ e $A_0^2 \subset A_{\frac{1}{2}}$.

Prova. É claro que as condições são necessárias para que A seja uma álgebra de Bernstein. Para verificar que as condições são

suficientes a idéia é provar que A satisfaz as hipóteses do teorema 1 do capítulo I.

Como a dimensão de $A_1 = 1$, então $A_1 = Fe$. Definimos a forma linear $w : A \to F$ como $w(\lambda e + t) = \lambda$ para todo $\lambda \in F$ e $t \in A_{\frac{1}{2}} \oplus A_0$. Então w é um homomorfismo de álgebras e portanto (A, w) é uma álgebra ponderada.

Das hipóteses e do lema 1 temos que A satisfaz as relações (4) do capítulo I.

Sejam h, i, $j \in A_{\frac{1}{2}}$ e $x, y \in A_0$. Como $xi \cdot j + xj \cdot i \in A_0$ e $x \cdot ij \in A_{\frac{1}{2}}$, da identidade (6) temos que

$$xi \cdot j + xj \cdot i = [xi \cdot j + xj \cdot i]_0 = [x \cdot ij]_0 = 0,$$

assim

$$xi \cdot i = 0. \tag{16}$$

Como $x^2 \in A_{\frac{1}{2}}$, de (12) obtemos que

$$ix^2 = 0. \tag{17}$$

Como $A_{\frac{1}{2}}^2 \subset A_0$, uma consequência de (10) é

$$h \cdot ij + i \cdot hj + j \cdot hi = 0, \tag{18}$$

logo

$$i^3 = 0. \tag{19}$$

De (17), (18) e a hipótese $A_0^2 \subset A_{\frac{1}{2}}$, segue também que

$$i^2x^2 = -2i \cdot ix^2 = 0. \tag{20}$$

Como $i^2 \in A_0$, usando (16) e (19) temos que

$$h(e; x, i, i, i, e) = -i(i \cdot ix) + 2ix \cdot ei^2 - 2e(i^2 \cdot ix)$$

$$+2i(e(i \cdot ix)) - i(x \cdot ei^2) + x \cdot ei^3 - 2(ix)(e \cdot ei^2)$$

$$+2e(e(i^2 \cdot ix)) = -\frac{1}{2}i^2 \cdot ix.$$

Logo

$$i^2 \cdot ix = 0. \tag{21}$$

Agora vemos que

$$h(e; i, i, i, i, e) = 2i^2 \cdot ei^2 - e \cdot i^2 i^2 + 2i \cdot ei^3$$

$$-2i(i \cdot ei^2) - 2i^2(e \cdot ei^2) + e(e \cdot i^2 i^2) = -\frac{1}{4}i^2 i^2,$$

isto é,

$$i^2 i^2 = 0. \tag{22}$$

Também temos que

$$h(e; x, x, x, x, e) = 2x^2 \cdot ex^2 - e \cdot x^2 x^2 - 2x^2(e \cdot ex^2)$$

$$+e(e \cdot x^2 x^2) = \frac{1}{2}x^2 x^2,$$

isto é,

$$x^2 x^2 = 0. \tag{23}$$

Usando agora (16), (17) e (20) temos que

$$h(i; i, x, x, e, e) = -2(ix)^2 + 2x(i \cdot ix) - 2i^2 \cdot ex^2$$

$$+2e \cdot i^2 x^2 + 4e(ix)^2 - 4e(x(i \cdot ix)) - 2i \cdot ex^2 + 2i(i \cdot ex^2)$$

$$= -2(ix)^2,$$

logo

$$(ix)^2 = 0. \tag{24}$$

Assim, se $t = i + x$ então de (17), (20), (21), (22), (23) e (24) temos

$$t^2t^2 = i^2i^2 + 4(ix)^2 + x^2x^2 + 4i^2 \cdot ix + 2i^2x^2 + 4ix \cdot x^2 = 0,$$

isto é,

$$t^2t^2 = 0 \ \ (\forall t \in A_{\frac{1}{2}} \oplus A_0). \tag{25}$$

As relações (16) a (25) preenchem as condições do teorema 1 do capítulo I, e portanto A é uma álgebra de Bernstein.

Exemplo 2. Consideremos a álgebra comutativa A com base $\{e, u, z\}$ e multiplicação dada por $e^2 = e$, $eu = \frac{1}{2}u$, $z^2 = z$, $ez = uz = u^2 = 0$. Esta álgebra satisfaz as identidades $(x^2x^2, y, x) = 0$ e $(x^2, y, x) = 0$, logo, satisfaz a identidade (1). Assim, é de Jordan mas não é de Bernstein pois $0 \neq A_0^2 \subset A_0$.

4. A identidade

$$(\mathrm{x}, \mathrm{yx}^2, \mathrm{x}^2) - (\mathrm{x}, \mathrm{yx} \cdot \mathrm{x}, \mathrm{x}^2) - 2(\mathrm{x}^3, \mathrm{xy}, \mathrm{x}) + 2(\mathrm{x}^2, \mathrm{xy}, \mathrm{x})\mathrm{x} = 0$$

Seja A uma álgebra comutativa (não necessariamente de di-

mensão finita) sobre um corpo F de característica zero e que satisfaz a identidade

$$(x, yx^2, x^2) - (x, yx \cdot x, x^2) - 2(x^3, xy, x) + 2(x^2, xy, x)x = 0. \quad (26)$$

Linearizando esta identidade obtemos

$$(z, yx^2, x^2) + 2(x, xz \cdot y, x^2) + 2(x, yx^2, xz) - (z, yx \cdot x, x^2)$$

$$-(x, yz \cdot x, x^2) - (x, xy \cdot z, x^2) - 2(x, yx \cdot x, xz) - 4(xz \cdot x, xy, x)$$

$$-2(x^2z, xy, x) - 2(x^3, yz, x) - 2(x^3, xy, z) + 4(xz, xy, x)x$$

$$+2(x^2, yz, x)x + 2(x^2, xy, z)x + 2(x^2, xy, x)z = 0. \quad (27)$$

Suponhamos que A contem um elemento idempotente não-trivial e. Se fazemos $y = x = e$ em (27) obtemos que o operador L_e satisfaz a equação

$$L_e(L_e - I)(L_e - \frac{1}{2}I) = 0.$$

Temos então que A decompõe-se em subespaços como

$$A = A_1 \oplus A_{\frac{1}{2}} \oplus A_0.$$

Lema 9. Os espaços A_λ verificam as seguintes relações:

$$A_1^2 \subset A_1, \qquad A_{\frac{1}{2}}^2 \subset A_1 \oplus A_0, \qquad A_1 A_{\frac{1}{2}} \subset A_{\frac{1}{2}},$$
$$A_1 A_0 = 0, \qquad A_{\frac{1}{2}} A_0 \subset A_{\frac{1}{2}}.$$

Prova. A prova deste lema é analoga à prova do lema 1.

Observação. O seguinte exemplo mostra que existem álgebras que satisfazem a identidade (26) e tais que $0 \neq A_0^2 \subset A_1$. Além disso, o exemplo mostra que as identidades (1) e (26) não são equivalentes.

Exemplo 3. Consideremos a álgebra com base $\{e, z\}$ e multiplicação dada por $e^2 = e$, $z^2 = e$, $ez = 0$. Fsta álgebra satisfaz a identidade (26) mas não satisfaz a identidade (1).

Observação. As relações envolvendo produtos de elementos dos subespaços A_λ são as mesmas que obtivemos no lema 2 para a identidade 1, e a técnica para obter estas relações é a mesma empregada na prova do lema 2. Portanto, a prova do lema que segue será apresentada de maneira resumida.

Denotaremos por $g(y; x, z, u, w, v)$ a linearização completa da identidade (26).

Lema 10. Se $a, b \in A_1$, $h, i, j \in A_{\frac{1}{2}}$, $x, y, z \in A_0$ então:

$$h \cdot ab = ha \cdot b + hb \cdot a, \tag{28}$$

$$a \cdot ij = [i \cdot aj]_1 + [j \cdot ai]_1, \tag{29}$$

$$[x \cdot ij]_0 = [xi \cdot j]_0 + [xj \cdot i]_0, \tag{30}$$

$$[j \cdot ix]_1 = [i \cdot jx]_1, \tag{31}$$

$$[i \cdot aj]_0 = [j \cdot ai]_0, \tag{32}$$

$$a \cdot hx = ah \cdot x, \tag{33}$$

$$h[ij]_0 + i[hj]_0 + j[hi]_0 = h[ij]_1 + i[hj]_1 + j[hi]_1, \tag{34}$$

$$a^2 \cdot ba = a^2 b \cdot a. \tag{35}$$

$$i[xy]_{\frac{1}{2}} = 0. \tag{36}$$

Prova. Usando as relações obtidas no lema 9 temos que

$$g(a; h, b, e, e, e) = 18bh \cdot a + 18ah \cdot b - 18h \cdot ab,$$

de onde obtemos (28). Para obter (29) e (32) calculamos $g(j; a, i, e, e, e)$ para obter

$$\frac{15}{2}a \cdot ij - \frac{15}{2}i \cdot aj - \frac{15}{2}j \cdot ai + 27a(e \cdot ij) - 33e(a \cdot ij) + 6e(i \cdot aj)$$

$$-33e(j \cdot ai) - 6a(e(e \cdot ij)) - 6e(a(e \cdot ij)) + 12e(e(a \cdot ij)) + 12e(e(j \cdot ai)) = 0.$$

Das relações do lema 9 obtemos que isto é igual a

$$\frac{15}{2}a \cdot ij - \frac{15}{2}[i \cdot aj]_1 - \frac{15}{2}[i \cdot aj]_0 + \frac{15}{2}[j \cdot ai]_1 + 27a[ij]_1 - 33a[ij]_1$$

$$+6[i \cdot aj]_1 - 33[j \cdot ai]_1 - 12[a \cdot ij]_1 + 12[a \cdot ij]_1 + 12[j \cdot ai]_1 = 0.$$

Disto seguem as relações

$$\frac{9}{2}a \cdot ij - \frac{9}{2}[i \cdot aj]_0 - \frac{9}{2}[j \cdot ai]_0 = 0$$

e

$$\frac{15}{2}[i \cdot aj]_0 = \frac{15}{2}[j \cdot ai]_0.$$

Para obter (30) e (31) calculamos

$$g(e; h, x, i, e, e) = 3h \cdot ix + 3j \cdot hx - 3x \cdot hi + e(h \cdot ix) + e(i \cdot hx)$$

$$+10e(x\cdot hi)-14x(e\cdot hi)-4e(e(h\cdot ix))-4e(e(i\cdot hx))-8e(e(x\cdot hi))$$

$$+12e(x(e\cdot hi))-4x(e(e\cdot hi))+3h\cdot ix+3i\cdot hx-3x\cdot hi$$

$$+[h\cdot ix]_1+[i\cdot hx]_1+10e(x\cdot hi)-4[h\cdot ix]_1-4[i\cdot hx]_1$$

$$-8e(e(x\cdot hi))+3[h\cdot ix]_0+3[i\cdot hx]_0-3[x\cdot hi]_0-3[x\cdot hi]_{\frac{1}{2}}$$

$$-3[x\cdot hi]_1+10[x\cdot hi]_1+5[x\cdot hi]_{\frac{1}{2}}-2[x\cdot hi]_{\frac{1}{2}}-8[x\cdot hi]_1=0.$$

Disto segue $[h\cdot ix]_1=0$ e obtemos assim as igualdades (30) e (31).

Da mesma maneira obtemos (33) calculando $g(h;,a,x,e,e,e)$, (34) calculando $g(e;i,j,k,e,e)$, (35) calculando $g(b;a,a,a,e,e)$ e (36) calculando $g(e;x,y,h,e,e)$.

Para terminar esta seção enunciaremos dois teoremas:

Teorema 11. Seja A uma álgebra comutativa (não necessariamente de dimensão finita) sobre um corpo F de característica zero, que satisfaz a identidade (26) e contem um elemento idempotente não-trivial e. Seja $A=A_1\oplus A_{\frac{1}{2}}\oplus A_0$ a decomposição de Peirce relativa a e. Então A é uma álgebra de Jordan se e somente se $A_0^2\subset A_{\frac{1}{2}}\oplus A_0$, A_0 é uma subálgebra de Jordan e

$$j\cdot xy=jx\cdot y+jy\cdot x\quad(\forall x,y\in A_0,j\in A_{\frac{1}{2}}).\tag{14}$$

Teorema 12. Seja A uma álgebra comutativa (não necessariamente de dimensão finita) sobre um corpo F de característica zero que satisfaz a identidade (26) e contem um elemento idempotente não trivial e. Seja $A=A_1\oplus A_{\frac{1}{2}}\oplus A_0$ a decomposição

de Peirce relativa a e. Então A é de Bernstein se e somente se $dim A_1 = 1$, $A_{\frac{1}{2}}^2 \subset A_0$ e $A_0^2 \subset A_{\frac{1}{2}}$.

Observação. A prova destes dois teoremas é essencialmente a mesma dos teoremas 5 e 8.

As álgebras dos exemplos 1, 2 e 3 satisfazem a identidade (26) mas não são álgebras de Bernstein.

Referências: [C-3], [O-3].

APÊNDICE

1. Diagramas de Young e tableaux standard. n=5

[] [] [] [] [] 1 2 3 4 5

[] [] [] [] 1 2 3 4 1 2 3 5 1 2 4 5 1 3 4 5
[] 5 4 3 2

[] [] [] 1 2 3 1 2 4 1 3 4 1 2 5 1 3 5
[] [] 4 5 3 5 2 5 3 4 2 4

[] [] [] 1 2 3 1 2 4 1 3 4 1 2 5 1 3 5
[] 4 3 2 3 2
[] 5 5 5 4 4

1 4 5
2
3

[ ]	[ ]	1	2	1	3	1	2	1	3	1	4
[ ]	[ ]	3	4	2	4	3	5	2	5	2	5
[ ]		5		5		4		4		3	

[ ]	[ ]	1	2	1	3	1	4	1	5
[ ]		3		2		2		2	
[ ]		4		4		3		3	
[ ]		5		5		5		4	

[ ]	1
[ ]	2
[ ]	3
[ ]	4
[ ]	5

2. Diagramas de Young e tableaux standard. n=6

```
[] [] [] [] [] []     1 2 3 4 5 6

[] [] [] [] []        1 2 3 4 5     1 2 3 4 6     1 2 3 5 6
[]                    6             5             4

                      1 2 4 5 6     1 3 4 5 6
                      3             2

[] [] [] []           1 2 3 4       1 2 3 5       1 2 4 5       1 3 4 5
[] []                 5 6           4 6           3 6           2 6

1 2 3 6               1 2 4 6       1 3 4 6       1 2 5 6       1 3 5 6
4 5                   3 5           2 5           3 4           2 4

                      1 2 3 4       1 2 3 5
[] [] [] []           5             4
[]                    6             6
[]

1 2 4 5               1 3 4 5       1 2 3 6       1 2 4 6
3                     2             4             3
6                     6             5             5
```

1	3	4	6	1	2	5	6	1	3	5	6	1	4	5	6
2				3				2				2			
5				4				4				3			

[]	[]	[]	1	2	3	1	2	4	1	3	4
[]	[]	[]	4	5	6	3	5	6	2	5	6

1	2	5	1	3	5
3	4	6	2	4	6

[]	[]	[]	1	2	3	1	2	4	1	3	4	1	2	5
[]	[]		4	5		3	5		2	5		3	4	
[]			6			6			6			6		

1	3	5	1	2	3	1	2	4	1	3	4
2	4		4	6		3	6		2	6	
6			5			5			5		

1	2	5	1	3	5	1	4	5	1	2	6
3	6		2	6		2	6		3	4	
4			4			3			5		

1	3	6	1	2	6	1	3	6	1	4	6
2	4		3	5		2	5		2	5	
5			4			4			3		

```
[] [] []   1 2 3   1 2 4   1 3 4   1 2 5   1 3 5   1 4 5
[]         4       3       2       3       2       2
[]         5       5       5       4       4       3
[]         6       6       6       6       6       6

           1 2 6   1 3 6   1 4 6   1 5 6
           3       2       2       2
           4       4       3       3
           5       5       5       4
```

```
[] []   1 2   1 3   1 2   1 3   1 4
[] []   3 4   2 4   3 5   2 5   2 5
[] []   5 6   5 6   4 6   4 6   3 6
```

```
[] []   1 2   1 3   1 2   1 3   1 4   1 2
[] []   3 4   2 4   3 5   2 5   2 5   3 6
[]      5     5     4     4     3     4
[]      6     6     6     6     6     5

              1 3   1 4   1 5
              2 6   2 6   2 6
              4     3     3
              5     5     4
```

[]	[]	1	2	1	3	1	4	1	5	1	6
[]		3		2		2		2		2	
[]		4		4		3		3		3	
[]		5		5		5		4		4	
[]		6		6		6		6		5	

[]	1
[]	2
[]	3
[]	4
[]	5
[]	6

3. Representação de S_5

$(12) \mapsto$

$$[1] \oplus \begin{bmatrix} 1 & 0 & 0 & -1 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & -1 \end{bmatrix} \oplus \begin{bmatrix} 1 & 0 & -1 & 0 & 0 \\ 0 & 1 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 & 0 \\ 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & -1 \end{bmatrix} \oplus \begin{bmatrix} 1 & 0 & -1 & 0 & 1 & 0 \\ 0 & 1 & -1 & 0 & 0 & 1 \\ 0 & 0 & -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & -1 & 1 \\ 0 & 0 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 0 & 0 & -1 \end{bmatrix}$$

$$\oplus \begin{bmatrix} 1 & -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & -1 & 1 \\ 0 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 0 & -1 \end{bmatrix} \oplus \begin{bmatrix} 1 & -1 & 1 & -1 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix} \oplus [-1]$$

$(23451) \mapsto$

$$[1] \oplus \begin{bmatrix} -1 & 1 & 0 & 0 \\ -1 & 0 & 1 & 0 \\ -1 & 0 & 0 & 1 \\ -1 & 0 & 0 & 0 \end{bmatrix} \oplus \begin{bmatrix} -1 & 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 & 1 \\ -1 & 0 & 1 & 0 & 0 \\ 0 & -1 & 0 & 0 & 0 \\ 0 & -1 & 1 & 0 & 0 \end{bmatrix} \oplus \begin{bmatrix} 1 & -1 & 0 & 1 & 0 & 0 \\ 1 & 0 & -1 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \end{bmatrix}$$

$$\oplus \begin{bmatrix} 1 & 0 & -1 & 0 & 0 \\ 1 & -1 & -1 & 1 & 0 \\ 1 & -1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 & 0 \end{bmatrix} \oplus \begin{bmatrix} -1 & 1 & -1 & 1 \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix} [-1]$$

4. Representação de S_6

$(12) \rightarrow$

$$[1] \oplus \begin{bmatrix} 1 & 0 & 0 & 0 & -1 \\ 0 & 1 & 0 & 0 & -1 \\ 0 & 0 & 1 & 0 & -1 \\ 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & -1 \end{bmatrix} \oplus \begin{bmatrix} 1 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & -1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & -1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & -1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 \end{bmatrix}$$

$$\oplus \begin{bmatrix} 1 & 0 & 0 & -1 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & -1 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & -1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & -1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 \end{bmatrix} \oplus \begin{bmatrix} 1 & 0 & -1 & 0 & 0 \\ 0 & 1 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 & 0 \\ 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & -1 \end{bmatrix}$$

$$\oplus \begin{bmatrix}
1 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & -1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1
\end{bmatrix}$$

$$\oplus \begin{bmatrix}
1 & 0 & -1 & 0 & 1 & 0 & 0 & -1 & 0 & 0 \\
0 & 1 & -1 & 0 & 0 & 1 & 0 & 0 & -1 & 0 \\
0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & -1 & 1 & 0 & 0 & 0 & -1 \\
0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 & 1 & -1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1
\end{bmatrix} \oplus \begin{bmatrix}
1 & -1 & 0 & 0 & 0 \\
0 & -1 & 0 & 0 & 0 \\
0 & 0 & 1 & -1 & 1 \\
0 & 0 & 0 & -1 & 0 \\
0 & 0 & 0 & 0 & -1
\end{bmatrix}$$

$$\oplus \begin{bmatrix}
1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & -1 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & -1 & 1 & -1 \\
0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1
\end{bmatrix} \oplus \begin{bmatrix}
1 & -1 & 1 & -1 & 1 \\
0 & -1 & 0 & 0 & 0 \\
0 & 0 & -1 & 0 & 0 \\
0 & 0 & 0 & -1 & 0 \\
0 & 0 & 0 & 0 & -1
\end{bmatrix} \oplus [-1]$$

$(234561) \rightarrow$

$$[1] \oplus \begin{bmatrix} -1 & 1 & 0 & 0 & 0 \\ -1 & 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 & 1 \\ -1 & 0 & 0 & 0 & 0 \end{bmatrix} \oplus \begin{bmatrix} -1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ -1 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ -1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & -1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -1 & 1 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\oplus \begin{bmatrix} 1 & -1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 1 & 0 & -1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & -1 & 0 & 0 & 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -1 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & -1 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \oplus \begin{bmatrix} -1 & 0 & 0 & 0 & 1 \\ -1 & 0 & 0 & 1 & 0 \\ -1 & 0 & 1 & 1 & 0 \\ 0 & -1 & 0 & 1 & 0 \\ 0 & -1 & 1 & 1 & -1 \end{bmatrix}$$

$$\oplus \begin{bmatrix} 1 & 0 & 0 & -1 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & -1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 1 & 0 & -1 & 0 & 0 & -1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -1 & 0 & 0 & 0 & -1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 1 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & -1 & 0 & 0 & 0 & -1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\oplus \begin{bmatrix} -1 & 1 & 0 & -1 & 0 & 0 & 1 & 0 & 0 & 0 \\ -1 & 0 & 1 & 0 & -1 & 0 & 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -1 & 1 & 0 & 0 & -1 & 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -1 & 1 & -1 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 \end{bmatrix} \oplus \begin{bmatrix} 1 & 0 & 0 & 0 & 1 \\ 1 & -1 & 0 & 0 & 0 \\ 1 & -1 & -1 & 1 & 0 \\ 1 & 0 & -1 & 0 & 0 \\ 0 & 1 & 0 & -1 & 1 \end{bmatrix}$$

$$\oplus \begin{bmatrix} -1 & 0 & 1 & 0 & 0 & -1 & 0 & 0 & 0 \\ -1 & 1 & 1 & -1 & 0 & -1 & 1 & 0 & 0 \\ -1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -1 & 0 & 0 & 0 & -1 & 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -1 & 1 & -1 & 0 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 \end{bmatrix} \oplus \begin{bmatrix} 1 & -1 & 1 & -1 & 1 \\ 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix} \oplus [-1]$$

5. Forma escalonada das matrizes para o caso excepcional, grau quatro

Rep. 1, excepcional, comutativa, grau 4

Rep. 2, excepcional, comutativa, grau 4

$$\left|\begin{array}{ccc|ccc} 1 & 0 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{array}\right.$$

Rep. 3, excepcional, comutativa, grau 4

$$\left|\begin{array}{cc|cc} 1 & 2 & 0 & 0 \\ 0 & 0 & 1 & 2 \end{array}\right.$$

Rep. 4, excepcional, comutativa, grau 4

$$\left|\begin{array}{ccc|ccc} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{array}\right.$$

Rep. 5, excepcional, comutativa, grau 4

$$\begin{array}{cc} 1 & 0 \\ 0 & 1 \end{array}$$

Rep. 1, excepcional, todas as identidades, grau 4

1-1

Rep. 2, excepcional, todas as identidades, grau 4

$$\left|\begin{array}{ccc|ccc} 1 & 0 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{array}\right.$$

Rep. 3, excepcional, todas as identidades, grau 4

$$\left|\begin{array}{cc|cc} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & 2 \end{array}\right.$$

Rep. 4, excepcional, todas as identidades, grau 4

$$\left|\begin{array}{ccc|ccc} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{array}\right.$$

Rep. 5, excepcional, todas as identidades, grau 4

$$\begin{array}{cc} 1 & 0 \\ 0 & 1 \end{array}$$

6-a) Identidades de grau cinco no caso excepcional

1	1	abcde	1
1	1	acbde	-1
2	1	abcde	1
2	1	adebc	-1
3	2	abcde	1
3	2	bacde	-1
4	2	abcde	1
4	2	abdce	-1
5	3	abcde	1
5	3	bacde	-1
6	3	abcde	1
6	3	acbde	-1
7	3	abcde	1
7	3	abced	-1
8	4	abcde	1
8	4	bacde	-1
9	4	abcde	1
9	4	cdabe	-1
10	5	abcde	1
10	5	bacde	-1
11	5	abcde	1
11	5	abced	-1
12	4	abcde	2
12	4	adcbe	2
12	2	abcde	-1
12	2	adcbe	-1
12	2	cbade	-1
12	2	cdabe	-1
13	1	eabcd	2
13	1	eadcb	2
13	3	eabcd	-1
13	3	eadcb	-1
13	3	ecbad	-1
13	3	ecdab	-1
14	5	aebcd	2
14	5	aedcb	2
14	3	aebcd	-1
14	3	aedcb	-1
14	2	cbaed	-1
14	2	cdaeb	-1

6-b) Forma escalonada das matrizes para o caso excepcional, grau cinco

Rep. 2, excepcional comutativa, grau 5

1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	53	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	53	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	052	1	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	1	

Rep. 3, excepcional comutativa, grau 5

1	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	-1	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	-1	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	050	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	052	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	052	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	152	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-1	-2			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		

Rep. 4, excepcional comutativa, grau 5

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	-1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	52
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152

Rep. 5, excepcional comutativa, grau 5

1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	70	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	68	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	68	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	169	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Rep. 6, excepcional comutativa, grau 5

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Rep. 7 excepcional comutativa, grau 5

1	0	0	0	0
0	1	0	0	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	1

Rep. 1, excepcional todas as identidades

1	0	0	1	-2
0	1	0	-1	0
0	0	1	1	-2

Rep. 2, excepcional todas as identidades

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	052		0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	052		0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	052		0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	052		0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	2	-2
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0	0	2	-2
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	097	0	0	-2	2
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6	0	0	3	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	6	0	0	3	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	099	0	0	-2	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	099	0	0	-2	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	052		1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152		1

Rep. 3, excepcional todas as identidades

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2	0	0	09999			
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0-2	-2		
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	2	
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	2	
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	099	-2		
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	099	-2		
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	-3	0	0	09797			
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	2	
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	2	
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2	2	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	-2	0	0	09999			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0-1	-2	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0-1	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1

Rep. 4, excepcional todas as identidades

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	052
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0-1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152

Rep. 5, excepcional todas as identidades

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	5
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-2	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	9	5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Rep. 6, excepcional todas as identidades

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Rep. 7, excepcional todas as identidades

1	0	0	0	0
0	1	0	0	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	1

7-a) Identidades de grau quatro no caso nuclear

1	1	abcd	1
1	1	acbd	-1
2	3	abcd	1
2	3	bacd	-1
3	4	abcd	1
3	4	bacd	-1
4	4	abcd	1
4	4	cdab	-1
5	2	abcd	1
5	2	bacd	-1
6	2	abcd	1
6	2	abdc	-1
7	1	adcb	-3
7	1	dacb	-3
7	1	cadb	-3
7	1	adbc	-3
7	1	dabc	-3
7	1	acbd	-3
7	1	dcba	-3
7	1	cabd	-3
7	1	cdba	-3
7	1	bdac	-3
7	1	bacd	-3
7	1	bdca	-3

7	3	cbda	2
7	3	cbad	2
7	3	dbca	2
7	3	abcd	2
7	3	dbac	2
7	3	abdc	2
7	3	dcba	2
7	3	acbd	2
7	3	adbc	2
7	3	dcab	2
7	3	acdb	2
7	3	adcb	2
7	4	dcab	4
7	4	acdb	4
7	4	adcb	4
8	4	cbad	2
8	4	dbac	2
8	4	abdc	2
8	2	cbad	-1
8	2	dbac	-1
8	2	abdc	-1
8	2	dcab	-1
8	2	acdb	-1
8	2	adcb	-1

7-b) Forma escalonada das matrizes para o caso nuclear, grau quatro

Rep. 2, nuclear, comutativa, grau 4

$$
\begin{array}{|ccc|ccc|ccc|ccc}
0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 2 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{array}
$$

Rep. 3, nuclear, comutativa, grau 4

$$
\begin{array}{|cc|cc|cc|cc}
1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 2 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 2 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 2
\end{array}
$$

Rep. 4, nuclear, comutativa, grau 4

$$
\begin{array}{|ccc|ccc|ccc|ccc}
1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & -2 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{array}
$$

Rep. 5, nuclear, comutativa, grau 4

$$
\begin{array}{cccc}
1 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 \\
0 & 0 & 1 & 0 \\
0 & 0 & 0 & 1
\end{array}
$$

Rep. 1, nuclear, todas as identidades, grau 4

```
1 06834
0 1 0-1
```

Rep. 2, nuclear, todas as identidades, grau 4

```
| 0 1-1| 0 0 0| 0 0 0| 0 0 0
| 0 0 0| 1 0 1| 0 0 0| 0 0 0
| 0 0 0| 0 1 1| 0 0 0| 0 0 0
| 0 0 0| 0 0 0| 1 1 2| 0 0 0
| 0 0 0| 0 0 0| 0 0 0| 1 0 0
| 0 0 0| 0 0 0| 0 0 0| 0 1 0
| 0 0 0| 0 0 0| 0 0 0| 0 0 1
```

Rep. 3, nuclear, todas as identidades, grau 4

```
| 1-1| 0 0| 0 0| 0 0
| 0 0| 1 2| 0 0| 0 0
| 0 0| 0 0| 1 2| 0 0
| 0 0| 0 0| 0 0| 1 2
```

Rep. 4, nuclear, todas as identidades, grau 4

```
| 1-1 0| 0 0 0| 0 0 0| 0 0 0
| 0 0 1| 0 0 0| 0 0 0| 0 0 0
| 0 0 0| 1 0 0| 0 0 0| 0 0 0
| 0 0 0| 0 1 0| 0 0 0| 0 0 0
| 0 0 0| 0 0 1| 0 0 0| 0 0 0
| 0 0 0| 0 0 0| 1 0-2| 0 0 0
| 0 0 0| 0 0 0| 0 1 1| 0 0 0
| 0 0 0| 0 0 0| 0 0 0| 1 0 0
| 0 0 0| 0 0 0| 0 0 0| 0 1 0
| 0 0 0| 0 0 0| 0 0 0| 0 0 1
```

Rep. 5, nuclear, todas as identidades, grau 4

```
1 0 0 0
0 1 0 0
0 0 1 0
0 0 0 1
```

8-a) Identidades de grau cinco no caso nuclear

1	1	abcde	1
1	1	acbde	-1
2	2	abcde	1
2	2	abdce	-1
3	2	abcde	1
3	2	bacde	-1
4	3	abcde	1
4	3	adebc	-1
5	3	abcde	1
5	3	acbde	-1
6	5	abcde	1
6	5	bacde	-1
7	6	abcde	1
7	6	bacde	-1
8	6	abcde	1
8	6	abced	-1
9	7	abcde	1
9	7	bacde	-1
10	7	abcde	1
10	7	cdabe	-1
11	7	abcde	1
11	7	abdce	-1
12	4	abcde	1
12	4	abced	-1
13	4	abcde	1
13	4	acbde	-1
14	4	abcde	1
14	4	bacde	-1
15	1	ecbda	2
15	1	ecbad	2
15	1	edbca	2
15	1	eabcd	2
15	1	edbac	2
15	1	eabdc	2
15	1	edcba	2
15	1	eacbd	2
15	1	eadbc	2
15	1	edcab	2
15	1	eacdb	2
15	1	eadcb	2
15	2	ebdca	-3
15	2	ebacd	-3
15	2	ebdac	-3
15	2	ecdba	-3
15	2	ecabd	-3
15	2	edcba	-3
15	2	eacbd	-3
15	2	edabc	-3
15	2	eadbc	-3
15	2	ecadb	-3
15	2	edacb	-3
15	2	eadcb	-3
15	3	edcab	4
15	3	eacdb	4
15	3	eadcb	4
16	1	bdcae	-3
16	1	bacde	-3
16	1	bdace	-3
16	1	cdbae	-3
16	1	cabde	-3
16	1	dcbae	-3
16	1	acbde	-3
16	1	dabce	-3
16	1	adbce	-3
16	1	cadbe	-3
16	1	dacbe	-3
16	1	adcbe	-3
16	7	dcabe	4
16	7	acdbe	4
16	7	adcbe	4
16	5	cbdae	2
16	5	cbade	2
16	5	dbcae	2
16	5	abcde	2
16	5	dbace	2
16	5	abdce	2
16	5	dcbae	2
16	5	acbde	2
16	5	adbce	2
16	5	dcabe	2
16	5	acdbe	2
16	5	adcbe	2
17	1	bdeca	-3
17	1	bdeac	-3
17	1	cdeba	-3
17	1	adebc	-3
17	1	cdeab	-3
17	1	adecb	-3
17	2	decba	-3
17	2	deabc	-3
17	2	deacb	-3
17	3	bacde	-3
17	3	cabde	-3
17	3	acbde	-3
17	5	debca	2
17	5	debac	2
17	5	decba	2
17	5	deabc	2
17	5	decab	2
17	5	deacb	2
17	6	cbade	2
17	6	abcde	2
17	6	acbde	2
17	6	decab	4
17	6	debac	4
17	6	deacb	4
17	7	cbeda	2
17	7	abdec	2
17	7	acdeb	2
18	2	cbade	-1
18	2	dbace	-1
18	2	abdce	-1
18	2	dcabe	-1
18	2	acdbe	-1
18	2	adcbe	-1
18	7	cbade	2
18	7	dbace	2
18	7	abdce	2
19	3	ecbad	2
19	3	edbac	2
19	3	eabdc	2
19	4	ecbad	-1
19	4	edbac	-1
19	4	eabdc	-1
19	4	edcab	-1
19	4	eacdb	-1
19	4	eadcb	-1
20	2	cbdea	-1
20	2	abdec	-1
20	2	acdeb	-1
20	6	deacb	2
20	6	debac	2
20	6	decab	2
20	4	debac	-1
20	4	decab	-1
20	4	deacb	-1

8-b) Forma escalonada das matrizes para o caso nuclear, grau cinco

```
Rep. 2, nuclear, comutativa, grau 5

| 0 0 1-1| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 1 0 2 2| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 1-1 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 1 0 0-1| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 1 0-1| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 1-1| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 0 053| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 1 053| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 1-1| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 1 1 2| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 052 1| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 152 1| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 0 0 4
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 1 0-1
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 1-1
```

```
Rep. 3, nuclear, comutativa, grau 5

| 1 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 1-1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 1 0 0-1-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 1 0-1-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 1 1 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 050| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 052| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 052| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 152| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 2 1 2| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 1 1| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 2
```

```
Rep. 4, nuclear, comutativa, grau 5

0 1-1 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 1-1 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 1 0 0 0 0-2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 1 0 0 0-2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 1 0 0 2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 1-1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 1 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 1 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
```

```
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0-1-2 0| 0 0 0 0 0 0| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 1 0-2| 0 0 0 0 0 0| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 1 1| 0 0 0 0 0 0| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0-1| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 052| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0-1| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 152| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0
```

Rep. 5, nuclear, comutativa, grau 5

```
1-1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 C
0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 C
0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 C
0 0 0 0 0| 1 0 0 070| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 1 0 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 1 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 169| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 1 0 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 2 2| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1-1| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 2 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 2 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 2 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 070
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 068
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 068
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 169
```

Rep. 6, nuclear, comutativa, grau 5

```
| 1-1 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 1 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 C
| 0 0 0 1| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 C
| 0 0 0 0| 1 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 1 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 1 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 1| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 1 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 1 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 1 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 1| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 1 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 1 0| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 1| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 0 0 2| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 1 0-1| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 1 1| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 1 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 1 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 1| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 1 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 1 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 1
```

Rep. 7, nuclear, comutativa, grau 5

```
1 0 0 0 0 0 0
0 1 0 0 0 0 0
0 0 1 0 0 0 0
0 0 0 1 0 0 0
0 0 0 0 1 0 0
0 0 0 0 0 1 0
0 0 0 0 0 0 1
```

Rep. 1, nuclear, todas as identidades, grau 5

```
1 0 0 0 0 1-2
0 1 0 0 0 0-1
0 0 1 0 0-2 1
0 0 0 1 0-2 1
0 0 0 0 15349
```

Rep. 2, nuclear, todas as identidades, grau 5

```
| 1 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0353570| 0 0 0 0| 0 0 070
| 0 1 0 0| 0 0 0 0| 0 0 0 0| 0 0 026| 06868 0| 0 03434| 0 0 069
| 0 0 1 0| 0 0 0 0| 0 0 0 0| 0 0 039| 0 0 068| 0 08633| 0 0 035
| 0 0 0 1| 0 0 0 0| 0 0 0 0| 0 0 039| 0 0 068| 0 08633| 0 0 035
| 0 0 0 0| 1 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 4
| 0 0 0 0| 0 1 0 0| 0 0 0 0| 0 0 0 1| 0 0 0 0| 0 0 0-2| 0 0 0 0
| 0 0 0 0| 0 0 1 0| 0 0 0 0| 0 0 0 1| 0 0 0 0| 0 0 0-2| 0 0 0 0
| 0 0 0 0| 0 0 0 1| 0 0 0 0| 0 0 0-1| 0 0 0 0| 0 0 0 2| 0 0 0-2
| 0 0 0 0| 0 0 0 0| 1 0 0 0| 0 0 026| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 1 0 0| 0 0 026| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 1 0| 0 0 026| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 1| 0 0 026| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 0 053| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 1 053| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 1-1| 0 0 0 0| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 1 1 2| 0 0 0 0| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 052 1| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 152 1| 0 0 0 0
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 1 0 0 4
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 1 0-1
| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 0 0| 0 0 1-1
```

Rep. 3, nuclear, todas as identidades, grau 5

```
| 1 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 1 05252| 0 0 0 0-1| 0 0 0 051| 0 0 0 039| 0 06869 0| 0 0 031-2| 0 0 0 034
| 0 0 15252| 0 0 0 0-1| 0 0 0 051| 0 0 0 039| 0 06869 0| 0 0 031-2| 0 0 0 034
| 0 0 0 0 0| 1 0 0 0-2| 0 0 0 0 0| 0 0 0 052| 0 0 0 0 0| 0 0 09799| 0 0 0 0 0
| 0 0 0 0 0| 0 1 0 0-2| 0 0 0 0 0| 0 0 0 052| 0 0 0 0 0| 0 0 09799| 0 0 0 0 0
| 0 0 0 0 0| 0 0 1 0 2| 0 0 0 0 0| 0 0 0 051| 0 0 0 0 0| 0 0 0 6 4| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 052| 0 0 0 0 0| 0 0 09799| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 050| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 052| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 052| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 152| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 2 1 2| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 1 1| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 2
```

Rep. 4, nuclear, todas as identidades, grau 5

```
0 1-1 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 1-1 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 1 0 0 0 0-2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 1 0 0 0-2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 1 0 0 2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 1-1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 1 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 1 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0-1-2 0| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 1 0-2| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 1 1| 0 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0-1| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 052| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0-1| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 152| 0 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 1
0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0
```

Rep. 5, nuclear, todas as identidades, grau 5

```
| 1-1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 1 0 0 070| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 1 0 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 1 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 169| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 1 0 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 2 2| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1-1| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 2 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 2 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 2 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 070
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 068
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 068
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 169
```

Rep. 6, nuclear, todas as identidades, grau 5

$$
\left|\begin{array}{cccc|cccc|cccc|cccc|cccc|cccc|cccc}
1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{array}\right.
$$

Rep. 7, nuclear, todas as identidades, grau 5

$$
\begin{matrix}
1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1
\end{matrix}
$$

1	4	abcde	2
1	4	acbde	2
1	4	adbce	2
1	2	abcde	-1
1	2	cdabe	-1
1	2	acbde	-1
1	2	bdace	-1
1	2	adbce	-1
1	2	bcade	-1
2	5	decab	2
2	5	debac	2
2	5	deabc	2
2	2	abdec	-1
2	3	cdeab	-1
2	2	acdeb	-1
2	3	bdeac	-1
2	3	adebc	-1
2	2	bcdea	-1
3	1	eabcd	2
3	1	eacbd	2
3	1	eadbc	2
3	3	abecd	-1
3	3	cdeab	-1
3	3	acebd	-1
3	3	bdeac	-1
3	3	adebc	-1
3	3	bcead	-1
4	1	abcde	1
4	1	acbde	-1
5	1	abcde	1
5	1	adebc	-1
6	2	abcde	1
6	2	bacde	-1
7	2	abcde	1
7	2	abdce	-1
8	3	abcde	1
8	3	bacde	-1
9	3	abcde	1
9	3	acbde	-1
10	3	abcde	1
10	3	abced	-1
11	4	abcde	1
11	4	bacde	-1
12	4	abcde	1
12	4	cdabe	-1
13	5	abcde	1
13	5	bacde	-1
14	5	abcde	1
14	5	abced	-1

9-b) Forma escalonada das matrizes para as álgebras de Bernstein, grau cinco

Rep. 2, Bernstein comutativa, grau 5

1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	53	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	53	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	052		1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152		1

Rep. 3, Bernstein comutativa, grau 5

1	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	-1	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	-1	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	050	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	052	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	052	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	152	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-1	-2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1

Rep. 4, Bernstein comutativa, grau 5

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	-1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	052	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	

Rep. 5, Bernstein comutativa, grau 5

1	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	70	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	68	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	68	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	169	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Rep. 6, Bernstein comutativa, grau 5

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Rep. 7, Bernstein comutativa, grau 5

1	0	0	0	0
0	1	0	0	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	1

Rep. 1, Bernstein todas as identidades, grau 5

1	0	0	1	-2
0	1	0	-1	0
0	0	1	1	-2

Rep. 2, Bernstein todas as identidades, grau 5

1	0	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-2
0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	-2
0	0	0	0	0	0	0	1	0	0	0	-1	0	0	0	-2	0	0	0	2	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	53	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	53	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	52	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	52	1	0	0	0	0	0

Rep. 3, Bernstein todas as identidades, grau 5

```
| 1 0 0 0-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 1 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 1 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 1 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 1 0 0 0-2| 0 0 0 052| 0 0 0 0 0| 0 0 09799
| 0 0 0 0 0| 0 1 0 0-2| 0 0 0 052| 0 0 0 0 0| 0 0 09799
| 0 0 0 0 0| 0 0 1 0 2| 0 0 0 051| 0 0 0 0 0| 0 0 0 6 4
| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 052| 0 0 0 0 0| 0 0 09799
| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 050| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 052| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 052| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 152| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0  0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 2| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 1 1
```

Rep. 4, Bernstein todas as identidades, grau 5

```
| 1 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 1 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 1 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 1 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 1 0 0 0 0-2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 1 0 0 0-2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 1 0 0 2| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 1-1| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 1 0| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 1| 0 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 1 0| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 1| 0 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 1 0 0 0 0 0
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 1 0 0 0-1
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 1 0 052
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 1 0-1
| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 0 0| 0 0 0 0 152
```

Rep. 5, Bernstein todas as identidades, grau 5

```
  1 0 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 1 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 1 0 0 070| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 1 0 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 1 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 169| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 070| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 068| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 068| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 169| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 2 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 2 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1
```

Rep. 6, Bernstein todas as identidades, grau 5

1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Rep. 7, Bernstein todas as identidades, grau 5

1	0	0	0	0
0	1	0	0	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	1

10-a) Identidades de grau seis em álgebras de Bernstein

1	1	abcdef	1
1	1	acbdef	-1
2	1	abcdef	1
2	1	adebcf	-1
3	2	abcdef	1
3	2	acbdef	-1
4	2	abcdef	1
4	2	abcdfe	-1
5	3	abcdef	1
5	3	bacdef	-1
6	3	abcdef	1
6	3	abdcef	-1
7	4	abcdef	1
7	4	bacdef	-1
8	4	abcdef	1
8	4	abdcef	-1
9	4	abcdef	1
9	4	abefcd	-1
10	5	abcdef	1
10	5	bacdef	-1
11	5	abcdef	1
11	5	acbdef	-1
12	5	abcdef	1
12	5	abcedf	-1
13	6	abcdef	1
13	6	bacdef	-1
14	6	abcdef	1
14	6	bcdaef	-1
15	6	abcdef	1
15	6	abcdfe	-1
16	7	abcdef	1
16	7	bacdef	-1
17	7	abcdef	1
17	7	cdabef	-1
18	8	abcdef	1
18	8	bacdef	-1
19	8	abcdef	1
19	8	cdabef	-1
20	8	abcdef	1
20	8	abcdfe	-1
21	9	abcdef	1
21	9	bacdef	-1
22	9	abcdef	1
22	9	abcdfe	-1
23	10	abcdef	1
23	10	bacdef	-1
24	10	abcdef	1
24	10	defabc	-1
25	11	abcdef	1
25	11	bacdef	-1
26	11	abcdef	1
26	11	abcedf	-1
27	7	abcdef	2
27	7	acbdef	2
27	7	adbcef	2
27	3	abcdef	-1
27	3	cdabef	-1
27	3	acbdef	-1
27	3	bdacef	-1
27	3	adbcef	-1
27	3	bcadef	-1
28	8	abcdef	2
28	8	acbdef	2
28	8	adbcef	2
28	4	abcdef	-1
28	4	cdabef	-1
28	4	acbdef	-1
28	4	bdacef	-1
28	4	adbcef	-1
28	4	bcadef	-1
29	9	defcab	2
29	9	defbac	2
29	9	defabc	2
29	3	abdefc	-1
29	6	cdefab	-1
29	3	acdefb	-1
29	6	bdefac	-1
29	6	adefbc	-1
29	3	bcdefa	-1
30	8	cedfab	2
30	10	ceadfb	2
30	10	dfaceb	2
30	4	abcedf	-1
30	6	cedfab	-1
30	5	acedfb	-1
30	5	bdfcea	-1
30	5	adfceb	-1
30	5	bcedfa	-1
31	11	decabf	2
31	11	debacf	2
31	11	deabcf	2
31	3	abdecf	-1
31	5	cdeabf	-1
31	3	acdebf	-1
31	5	bdeacf	-1
31	5	adebcf	-1
31	3	bcdeaf	-1
32	4	efabcd	2
32	4	efacbd	2
32	4	efadbc	2
32	6	abefcd	-1
32	6	cdefab	-1
32	6	acefbd	-1
32	6	bdefac	-1
32	6	adefbc	-1
32	6	bcefad	-1
33	1	fabcde	2
33	1	facbde	2
33	1	fadbce	2
33	5	abfcde	-1
33	5	cdfabe	-1
33	5	acfbde	-1
33	5	bdface	-1
33	5	adfbce	-1
33	5	bcfade	-1
34	2	fdecab	2
34	2	fdebac	2
34	2	fdeabc	2
34	5	abfdec	-1
34	6	cdefab	-1
34	5	acfdeb	-1
34	6	bdefac	-1
34	6	adefbc	-1
34	5	bcfdea	-1

10-b) Forma escalonada das matrizes para as álgebras de Bernstein, grau seis

```
Rep. 2, Bernstein, comutativa, grau 6

  0 1 0 0-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 1 0-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 1-1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 1 1 0 2 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 052| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 052| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 052| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 152| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 2 0 3| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1-1 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1-1| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 2|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 2|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0-1|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1-1|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|

 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 1 1 0 0 4| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 1 0-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 1 0 0 0 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 1 0 0 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 1 0-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 1 05252 1| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 15252 1| 0 0 0 0 0| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 2| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0-1| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0-1| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 2| 0 0 0 0 0
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 2 1 2
 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1-1 0 0
```

Rep. 3, Bernstein comutativa, grau 6

```
| 1 0 0 0 0 0 0 1 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 1 0 0 0 0 0 1 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 1 0 0 0 0 1 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 1 0 0 0 1 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 1 0 0 0-2 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 1 0-1 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 1 0 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 1-1 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 05251 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0-1 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0-1 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 05251 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0-2-2 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 1 0-1-2 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 1 0-1-2 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 1 1 2 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1-1 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0-1 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 051-1 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 051-1 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 1 1 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 051-1 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 051-1 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 1 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0-1 051
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0-1 051
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 035 069
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 035 069
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 1 0-1
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 052
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 152
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
```

```
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 1 0 0 0 0 0 0 0 3| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 1 0 0 0 0 0 025| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 1 0 0 0 0 025| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 1 0 0 0 025| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 1 0 0 025| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 1 0 025| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 1 028| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 152| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 2 4| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 153 3| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 2 4| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 153 3| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0-1-251-1| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 051-1| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0-1 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 1 152 1| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 051-1| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0-1-1
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0-1-1
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 2 4
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0-1
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 1 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0-1
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
1 0 0 0 0 0-1-1-1
0 1 0 0 0 0-1-1-1
0 0 1 2 0 0 2 2 2
0 0 0 0 1 0 1 0-1
0 0 0 0 0 1 0-1 0
```

Rep. 4, Bernstein comutativa, grau 6

```
| 1 0 0-1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 1 0-1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 1-1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0-1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0-1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0-1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1-1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1-1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0-2-2 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 1 0 0 0-2 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 1 0 0 0-2 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 1 0 0 2 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1-1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1-1 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
```

```
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 1 0 0 0 0 0 0 0-3 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 1 0 0 0 0 0 0-3 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 1 0 0 0 0 0 2 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 1 0 0 0 0 2 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 1 0 0-1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 1 0-1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 1-1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 099 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
```

```
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 1 0 0 1 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 1 0-1 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 1-1 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 1 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 1 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 1|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|1 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 1 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 1 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 1 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 1 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 1 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 1 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 1 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 1 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 1|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|
```

```
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 051-1 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 052 0-1|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 05252|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 051-1 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 052 0-1|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 05252|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|1 0 0 0 0 0 0 0 0-1|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 1 0 0 0 0 0 0 0-1|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 1 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 1 0 0 0 0 0 1|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 1 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 1 0 0 0-1|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 1 0 0 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 1 0-1|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 1 0|0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|1 0 0 0 0 0 0-1-2 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 1 0 0 0 0 0-1-2 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 1 0 0 0 0 2 0-2
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 1 0 0 0 0 2 1
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 1 0-1 0 0
0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 0 0 0 0|0 0 0 0 0 0 1 0-1 0
```

```
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
```

Rep. 5, Bernstein comutativa, grau 6

```
1 0 0 0-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 1 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 1 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 1 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 1 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 1 0 1 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 1 1 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 1 0-1-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 1 1 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0|
```

```
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 050| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 052| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 052| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 152| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
```

```
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 1 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 1 0 3 2| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 1 1
```

Rep. 6, Bernstein comutativa, grau 6

```
| 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0-3| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 1 0 0-1-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 1 0-199| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 1-1-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0-1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0-1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 0 0 0-1 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0 0 0-1 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1-1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0 0 0 0 0-1-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 1-1 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 1-1-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0 0 0-2 04952|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0 0 0 0-2 04952|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0 0 0 0 2 05451|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 070 0 0 0 169|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 068 0-1 02443|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0 0 0-2 0-1 1|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 0 0 0-2 0-1 1|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0 0 0 0 2 0 1-1|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 068 0 0 05117|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 169 0 0 0 169|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 1 0 0-1 1|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 15251|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0|
```

$$
\left|\begin{array}{cccccccccccccccc|cccccccccccccccc|ccccccccccccccc}
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0 \\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0
\end{array}\right.
$$

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
1 0 0 0 0 0 0 0 0 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 1 0 0 0 0 0 0 0 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 1 0 0 0 0 0 0 0 0 0 0 0 035 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 1 0 0 0 0 0 0 0 0 0 0 070 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 1 0 0 0 0 0 0 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 1 0 0 0 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 1 0 0 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 1 0 0 0 0 0 0 035 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 1 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 1 0 0 0 0 069 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 1 0 0 070 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 1 0 0-1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 1 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 169 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 0 0 0 0 033 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0 0 0 0 0 033 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 0 0 0 0 033 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0 0 0 0 0 037 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 0 0 0 0 035 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 0 0 0 0 035 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 0 0 0 0 035 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 0 0 0 0 031 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 1 0 0 035 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 1 0 033 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 1 035 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 137 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 |
```

$$
\left(\begin{array}{cccccccccccccccc|cccccccccccccccc|cccccccccccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}\right.
$$

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 070 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 068 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 1 068 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 169 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 1 0 0 070 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 1 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 1 (68 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 169 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 0 0 0 0 070 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 0 0 0 0 069 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 1 0 0 070 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 1 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 1 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 169 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 0 0-2 0 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 2 0 0 0 0 2 0-2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0-1 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0 0 0-1 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 0 0-2 0 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 2 0 0 0 0 2 0-2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 1 0 0 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 1 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

$$\begin{array}{cccccccccccccccc|cccccccccccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}$$

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0 0 0 0 0-1 1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 0 0 0 05252| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 0 0 0 0 05153| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0 0 0 0 0 0 05251| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 1 0 0 0 0 0 07726| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 1 0 0 0 07825| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 1 0 05253| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 1 0 0-1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 15253| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0 0 0 06833 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0 2 0 0 0 1 2-2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0-1 0 0 01734 1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 2 0 0 0 1 2-2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0-1 0 0 08567 1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0 0 0 06935 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 2 0 0 0 1 2 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0-1 0 0 06833 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 2 0 0 0 1 2 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 1 0-1 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 13569 0
```

Rep. 7, Bernstein comutativa, grau 6

$$
\left|\begin{array}{cccccccccc|cccccccccc|cccccccccc|cccccccccc}
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}\right|
$$

```
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
```

```
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
```

$$\begin{array}{cccccccccc|cccccccccc|cccccccccc|cccccccccc|}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}$$

$$\begin{array}{cccccccccc|cccccccccc|cccccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}$$

```
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 051 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0 052 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 1 051 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 152 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 2 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 2 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 2 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1-1 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0-1
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0-1
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 2
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1-1
```

```
Rep. 8, Bernstein, comutativa, grau 6

1 0 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 1 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 1 0 0 2 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 1 0 2 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 1 0 0 070| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 1 0 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 1 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 169| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 070| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 169| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 070|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 068|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 068|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 169|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
```

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	70	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	68	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	0	68	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	1	69	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	-1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Rep. 9, Bernstein, comutativa, grau 6

```
| 1 0 0-1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 1 0-1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 1-1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0-1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0-1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1-1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 2| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 052| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 050| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 051| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 153| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
```

$$
\left|\begin{array}{ccccccccc|ccccccccc|ccccccccc|ccccccccc|cccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}\right.
$$

$$
\begin{array}{ccccccccc|ccccccccc|ccccccccc|ccccccccc|cccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
$$

```
0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 052| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 050| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 051| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 153| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0-2 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 1 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0-1 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0-2 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 1 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
```

```
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0-2
0 1 0 0 0 0 0 0 1
0 0 1 0 0 0 0 0-2
0 0 0 1 0 0 0 0 1
0 0 0 0 1 0 0 0 0
0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 1-1
```

```
Rep. 10, Bernstein, comutativa, grau 6

1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0
```

```
0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
```

```
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
```

```
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1
```

Rep. 11, Bernstein comutativa, grau 6

```
1 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 0 0
0 0 0 0 0 1 0 0 0 0 0
0 0 0 0 0 0 1 0 0 0 0
0 0 0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 0 1 0
0 0 0 0 0 0 0 0 0 0 1
```

Rep. 1, Bernstein todas as identidades, grau 6

```
1 0 0 0 0 0 0 0 0-1 0
0 1 0 0 0 0 0 0-1-1 1
0 0 1 0 0 0 0 0 0 1-2
0 0 0 1 0 0 0 0-2-1 2
0 0 0 0 1 0 0 0 0-1 0
0 0 0 0 0 1 0 0-2-1 2
0 0 0 0 0 0 1 0 0 1-2
0 0 0 0 0 0 0 1-2-1 2
```

Rep. 2, Bernstein, todas as identidades, grau 6

```
1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 1 052 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 152 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
```

10.b) Forma escalonada das matrizes para as álgebras de Bernstein, grau seis (continuação)

```
0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
```

```
0 0 0 0 4| 0 0 0 0 0| 0 0 0 0-1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 052| 0 0 0 0 1| 0 0 0 051
0 0 0 0 0| 0 0 0 052| 0 0 0 0 1| 0 0 0 051
0 0 0 0 0| 0 0 0 0-1| 0 0 0 0-1| 0 0 0 0 1
0 0 0 0 0| 0 0 0 0-1| 0 0 0 0-1| 0 0 0 0 1
0 0 0 0 2| 0 0 0 0 2| 0 0 0 099| 0 0 4 2 2
0 0 0 0 2| 0 0 0-2 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0-2| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0-2| 0 0 0 0 0| 0 0 0 0 0
0 0 0 099| 0 0 0 1 1| 0 0 0 0 2| 0 0-2-1-1
0 0 0 0 4| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 4| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 4| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 099| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 2| 0 0 0 0-2| 0 0 0 0 4| 0 0 0 0 2
0 0 0 0 2| 0 0 0 0-2| 0 0 0 0-2| 0 0 0 0 2
0 0 0 0 2| 0 0 0 0-2| 0 0 0 0-2| 0 0 0 0 2
0 0 0 099| 0 0 0 0 2| 0 0 0 0 0| 0 0 0 0-2
0 0 0 0 4| 0 0 0 0 2| 0 0 0 0 0| 0 0 0 0-2
0 0 0 0 4| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 4| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 099| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 099| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 8| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 8| 0 0 0 0 2| 0 0 0 099| 0 0 4 2 2
0 0 0 099| 0 0 0-2 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 099| 0 0 05251| 0 0 0 0 1| 0 0-15151
0 0 0 099| 0 0 05251| 0 0 0 0 1| 0 0-15151
0 0 0 099| 0 0 05251| 0 0 0 0 1| 0 0-15151
0 0 0 0 4| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
1 0 0 0 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 1 0 0 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 1 0-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
```

```
0 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 1 05252 1| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 15252 1| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 2| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 1 0 0-1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 1 0-1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 2| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 2 1 2
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1-1 0 0
```

Rep. 3, Bernstein, todas as identidades, grau 6

```
| 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 1 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 1 0 0 0-2| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 1 0 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 1 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 1 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0-1 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 05251| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 052 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 052 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 05251| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 052 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 151 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
```

```
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
```

```
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03790
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03790
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03790
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03790
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 06613
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 06613
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03739 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 077 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 077 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 077 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03713 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 2 4 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 04551 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 04551 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0-1-2 | 0 0 0 0 0 0 05852 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 06258 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 06258 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 2 | 0 0 0 0 0 0 04145 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 06258 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 07477 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 2 4 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03535 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03535 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 06766 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03535 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03535 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 06970 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 2 4 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03433 |
1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 01625 |
0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 01625 |
0 0 1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 05852 |
0 0 0 1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 05852 |
0 0 0 0 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 09185 |
0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03332 |
0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 04957 |
0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03332 |
0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03739 |
0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 04064 |
0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 09387 |
0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 09387 |
0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 09387 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 09387 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 09387 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 03048 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 04145 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 02113 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 2 4 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 051-1 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 051-1 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 051-1 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 051-1 | 0 0 0 0 0 0 0 0 0 |
  0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 051-1 | 0 0 0 0 0 0 0 0 0 |
```

```
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 153 3| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 2 4|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 051-1|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 051-1|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 051-1|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 051-1|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 051-1|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 153 3|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
```

```
0 0 0 0 014784614| 0 0 0 0 0 019 690| 0 0 078 0 0392564
0 0 0 0 014784614| 0 0 0 0 0 019 690| 0 0 078 0 0392564
0 0 0 0 014784614| 0 0 0 0 0 019 690| 0 0 078 0 0392564
0 0 0 0 014784614| 0 0 0 0 0 019 690| 0 0 078 0 0392564
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 089255789| 0 0 0 0 0 0849713| 0 0 025 0 0647839
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 089255789| 0 0 0 0 0 0849713| 0 0 025 0 0647839
0 0 0 0 011769511| 0 0 0 0 0 072 839| 0 0 076 0 0382765
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 025-177| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 025-177| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 025-177| 0 0 0 0 0 0 0 0 0
0 0 0 0 011769511| 0 0 0 0 0 097 713| 0 0 076 0 0382765
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 056 38156| 0 0 0 0 0 0762451| 0 0 0 1 0 053-350
0 0 0 0 056 38156| 0 0 0 0 0 0762451| 0 0 0 I 0 053-350
0 0 0 0 047-32247| 0 0 0 0 0 0277952| 0 0 0-1 0 050 353
0 0 0 0 073134371| 0 0 0 0 0 0298758| 0 0 013 0 0589045
0 0 0 0 073134371| 0 0 0 0 0 0298758| 0 0 013 0 0589045
0 0 0 0 030906032| 0 0 0 0 0 0741645| 0 0 090 0 0451358
0 0 0 0 065 93765| 0 0 0 0 0 0298758| 0 0 013 0 0589045
0 0 0 0 032559531| 0 0 0 0 0 0381277| 0 0 052 0 0785025
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 87441 8| 0 0 0 0 0 070 437| 0 0 074 0 0372966
0 0 0 0 0 87441 8| 0 0 0 0 0 070 437| 0 0 074 0 0372966
0 0 0 0 095296295| 0 0 0 0 0 0339966| 0 0 029 0 0667437
0 0 0 0 0 87441 8| 0 0 0 0 0 070 437| 0 0 074 0 0372966
0 0 0 0 0 87441 8| 0 0 0 0 0 070 437| 0 0 074 0 0372966
0 0 0 0 095296295| 0 0 0 0 0 0339966| 0 0 029 0 0667437
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 87441 8| 0 0 0 0 0 070 437| 0 0 074 0 0372966
0 0 0 0 084567084| 0 0 0 0 0 0113625| 0 0 056 0 0284775
0 0 0 0 084567084| 0 0 0 0 0 0113625| 0 0 056 0 0284775
0 0 0 0 047-32247| 0 0 0 0 0 0277952| 0 0 0-3 0 050 353
0 0 0 0 047-32247| 0 0 0 0 0 0277952| 0 0 0-3 0 050 353
0 0 0 0 049675849| 0 0 0 0 0 0977985| 0 0 067 0 0853618
0 0 0 0 093622693| 0 0 0 0 0 0679932| 0 0 062 0 0314172
0 0 0 0 074159674| 0 0 0 0 0 0783257| 0 0 015 0 0598844
0 0 0 0 093622693| 0 0 0 0 0 0679932| 0 0 062 0 0314172
0 0 0 0 020825120| 0 0 0 0 0 072 839| 0 0 082 0 0412162
0 0 0 0 089255789| 0 0 0 0 0 0329664| 0 0 025 0 0647839
0 0 0 0 055716355| 0 0 0 0 0 0957987| 0 0 071 0 0873216
0 0 0 0 055716355| 0 0 0 0 0 0957987| 0 0 071 0 0873216
0 0 0 0 055716355| 0 0 0 0 0 0957987| 0 0 071 0 0873216
0 0 0 0 055716355| 0 0 0 0 0 0957987| 0 0 071 0 0873216
0 0 0 0 055716355| 0 0 0 0 0 0957987| 0 0 071 0 0873216
0 0 0 0 041961741| 0 0 0 0 0 0247248| 0 0 096 0 048 755
0 0 0 0 032906132| 0 0 0 0 0 0741645| 0 0 090 0 0451358
0 0 0 0 039268439| 0 0 0 0 0 0587113| 0 0 026 0 0137790
```

```
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
1 0 0 0 0-1-251-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 1 0 0-1 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 1 0 1 152 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 051-1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0-1-1-1| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0-1-1-1| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 2 4 2| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0-1 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 1 0-1| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0-1 0| 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0-1-1-1
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0-1-1-1
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 2 0 0 2 2 2
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 1 0-1
0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0-1 0
```

Rep.4, Bernstein todas as identidades, grau 6

```
| 1 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 1 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 1 0 0-1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 052 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 052 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 052 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 052 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1-1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
```

0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 051 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 051 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 051 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 051 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 077 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 077 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 077 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 077 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0

```
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 099 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0-2 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0-2 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 2 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 2 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0-2 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0-1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0-1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 1 0 0 0 0 0 0 0-3 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 1 0 0 0 0 0 0-3 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 1 0 0 0 0 0 2 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 1 0 0 0 0 2 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 1 0 0-1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 1 0-1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 1-1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 099 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0-1 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1-1 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0|
```

```
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 4 2
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 4 2
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 099-2
0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 2| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 2 1
0 0 0 0 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 2 1
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 051-1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 052 0-1| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 05252| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 051-1 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 052 0-1| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 1 05252| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0-1| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0-1| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0-1-2 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0-1-2 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 2 0-2
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 2 1
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0-1 0 0
0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0-1 0
```

Rep. 5, Bernstein, todas as identidades, grau 6

```
1 0 0 0-2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 1 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 1 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 1 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 077| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 1 0 0 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 077| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 1 0 2| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 077| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 1-1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 026| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 077| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 077| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 026| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 052| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 064| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 050| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 052| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 052| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 152| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 2|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
```

```
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0-1-2| 0 0 0 0 0| 0 0 0 3 2
0 0 0 0 0| 0 0 0-1-2| 0 0 0 0 0| 0 0 0 3 2
0 0 0 0 0| 0 0 0 1 2| 0 0 0 0 0| 0 0 0-3-2
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 09799
0 0 0 0 0| 0 0 051-1| 0 0 0 0 0| 0 0 056 3
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 1 0 0-1-2| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 1 0 3 2| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0-1-2
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 1 1
```

Rep. 6, Bernstein todas as identidades, grau 6

```
| 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0-3| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 1 0 0-1-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 1 0-199| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 1-1-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0 0 0 0 1 0 1 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0 0 0 0 1 0 1 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 0 0 0-1 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0 0 0-1 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 0 0 0 1 0 1 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0 0 0 0 1 0 1 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0 0 0 0 0-1-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 1-1 0 0 2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 1-1-2| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0 0 0 0-2 0 0-2
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0 0 0 0-2 0 0-2
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0 0 0 0 2 0 0 2
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0 0 0 0-1 0 0-1
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0 0 0 0-2 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0 0 0 0-2 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0 0 0 0 2 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 1
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 1
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1-1
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$$
\begin{array}{cccccccccccccccc|cccccccccccccccc|cccccccccccccccc|}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 17 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 17 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 17 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 17 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 33 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 35 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 35 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 34 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 4 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -3 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -3 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 4 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -3 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -3 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 4 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 33 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 33 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 33 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 37 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 35 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 35 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 35 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 31 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 35 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 33 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 35 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 37 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
$$

$$
\begin{array}{cccccccccccccccc|cccccccccccccccc|cccccccccccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
$$

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	0	0	0	0	83	0	83	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	0	0	0	0	83	0	83	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	20	0	20	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	0	0	0	0	93	0	93	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0	0	0	0	95	0	95	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0	0	0	0	95	0	95	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	8	0	8	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	6	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	6	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0	0	0	0	95	0	95	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	4	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0	0	0	0	95	0	95	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 070 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 068 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 1 068 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 169 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 70 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 68 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 68 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 69 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 0 0 0 0 070 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 0 0 0 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 0 0 0 0 069 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 1 0 0 070 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 1 0 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 1 068 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 169 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 0 0-2 0 2 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 2 0 0 0 0 2 0-2-2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0-1 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 0 0 0 0 2 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0 0 0-1 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 0 0-2 0 2 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 2 0 0 0 0 2 0-2-2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 0 0 0 0 2 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0-1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 1 0 0 2 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 1 2 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 8 0 0 0377495
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 099 0 0 03366 4
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 099 0 0 03366 4
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 2 0 0 03570-2
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 097 0 0 0-299 6
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-2-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-2-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 2 2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 4 4 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-3-3 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-2-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-2-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 2 2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-2-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 1 1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-3-3 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 4 4 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-3-3 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-2-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 1 1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0-3-3 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0  0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0 0 0 0 0-1 1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0 0 0 0 0 0-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 0 0 0 05252 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 0 0 0 0 0 0-2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 0 0 0 0 05153 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0 0 0 0 0 0 05251 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 1 0 0 0 0 0 07726 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 1 0 0 0 07825 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 2 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 1 0 05253 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 1 0 0-1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 15253 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 0 0 06833 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 2 0 0 0 1 2-2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0-1 0 0 01734 1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 2 0 0 0 1 2-2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0-1 0 0 08567 1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 0 0 06935 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 2 0 0 0 1 2 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0-1 0 0 06833 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 2 0 0 0 1 2 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 1 0-1 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 13569 0
```

Rep. 7, Bernstein todas as identidades, grau 6

```
| 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0-1 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0-1 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1-1 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 2 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 2 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0-2 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1-1 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
| 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 |
```

$$
\begin{array}{|cccccccccc|cccccccccc|cccccccccc|cccccccccc|}
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0
\end{array}
$$

$$
\begin{array}{cccccccccc|cccccccccc|cccccccccc|cccccccccc|}
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0\\
0&0&0&0&0&0&0&0&0&0&0&1&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0&0
\end{array}
$$

$$
\begin{array}{cccccccccc|cccccccccc|cccccccccc|cccccccccc|}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
$$

$$
\begin{array}{cccccccccc|cccccccccc|cccccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
$$

```
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 051 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0 052 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0 1 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 1 051 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 152 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 2 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 2 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 2 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1-1 | 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0-1
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 2
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0-1
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 2
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1-1
```

Rep. 8, Bernstein, todas as identidades, grau 6

```
1 0 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 1 0-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 1 0 0 2 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 1 0 2 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 1-1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 1 0 0 070| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 1 0 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 1 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 169| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 070|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 068|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 068|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 169|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0|
```

```
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 037| 0 0 0 0 0| 0 0 087 0| 0 0 0 0 0
0 0 0 033| 0 0 0 0 0| 0 0 0 8 0| 0 0 0 0 0
0 0 0 033| 0 0 0 0 0| 0 0 0 8 0| 0 0 0 0 0
0 0 0 035| 0 0 0 0 0| 0 0 099 0| 0 0 0 0 0
0 0 0 0-2| 0 0 0 0 0| 0 0 012 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
```

```
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
1 0 0 070| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 1 0 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 1 068| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 169| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 1 0 0 070| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 1 0 068| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 1 068| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 169| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 1 0 0 2 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 1 2 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 2 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0-1 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 2 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1
```

Rep. 9, Bernstein, todas as identidades, grau 6

```
| 1 0 0-1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 1 0-1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 1-1 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 1 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0-1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0-1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1-1 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 2| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0-1| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 052| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 050| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 1| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 051| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 153| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 1 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 1 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 1 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 1 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 1 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 1 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 1 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 1 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 1|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0 0|
```

$$
\begin{array}{|ccccccccc|ccccccccc|ccccccccc|ccccccccc|}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
$$

$$
\begin{array}{ccccccccc|ccccccccc|ccccccccc|ccccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{array}
$$

```
0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 2 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0-1 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 052 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 050 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 1 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 051 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 153 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 1 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 1 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 1 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 |
```

```
Rep. 10, Bernstein, todas as identidades, grau 6

1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0


| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
```

$$
\left|\begin{array}{ccccccccc|ccccccccc|ccccccccc}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & -2 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & -2 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1
\end{array}\right.
$$

```
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1| 0 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 1 0 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 1 0 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 1 0 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 1 0
|0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 0| 0 0 0 0 1
```

```
Rep. 11, Bernstein todas as identidades, grau 6

1 0 0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0 0 0
0 0 1 0 0 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0 0 0 0
0 0 0 0 0 1 0 0 0 0 0
0 0 0 0 0 0 1 0 0 0 0
0 0 0 0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 0 1 0
0 0 0 0 0 0 0 0 0 0 1
```

REFERÊNCIAS

[A-1] V. M. Abraham, *Linearizing quadratic transformations in genetic algebras*, Proc. London Math. Soc. (3) 40:346-363 (1980).

[A-2] M. T. Alcalde, R. Baeza, C. Burgueño, *Autour des algèbres de Bernstein*, Arch. Math. 53:134-140 (1989).

[B-1] S. N. Bernstein, *Principe de stationarité et généralization de la loi de Mendel*, C. R. Acad. Sci. Paris 177:581-584 (1923).

[B-2] H. Boerner, *Representations of groups with special considerations for the needs of modern physics*, North-Holland (1963).

[C-1] J. M. Clifton, *A simplification of the computation of the natural representation of the symmetric group* S_n, Proc. Amer. Math. Soc. 83:248-250 (1981).

[C-2] I. Correa, *Identities in Bernstein algebras*, por aparecer.

[C-3] I. Correa, I. R. Hentzel, L. A. Peresi, *Minimal Identities of Bernstein algebras*, por aparecer.

[C-4] R. Costa, *A note on Bernstein algebras*, Linear Alg. Appl. 112:195-205 (1989).

[C-5] R. Costa, *Principal train algebras of rank 3 and dimension* ≤ 5. Proc. Edinburgh Math. Soc., 33:61-70 (1990).

[G-1] M. Gerstenhaber, H. C. Myung, *On commutative power-associative nilalgebras of lower dimension*, Proc. Amer. Math. Soc. 48:29-32 (1975).

[G-2] A. N. Grishkov, *On the genetic property of Bernstein algebras*, Sov. Math. Dokl. 35:489-492 (1987).

[H-1] I. R. Hentzel, *Processing identities by groups representations*, Computers in nonassociative rings and algebras, R. E. Beck, B. Kolman (editors), Academic Press (1977).

[H-2] I. R. Hentzel, L. A. Peresi, *Almost Jordan rings*, Proc. Amer. Math. Soc. 104:343-348 (1988).

[H-3] I. R. Hentzel, L. A. Peresi, *Semiprime Bernstein algebras*, Arch. Math. 52:539-543 (1989).

[H-4] I. R. Hentzel, L. A. Peresi, P. Holgate, *On kth order Bernstein algebras and stability at the $k+1$ generation in polyploids*, IMA J. Math. Appl. Med. Biol. 7:33-40 (1990).

[H-5] I. R. Hentzel, L. A. Peresi, *Bernstein algebras given by symmetric bilinear forms*, Linear Alg. Appl. 145:213-219 (1991).

[H-6] I. R. Hentzel, J. M. Piacentini Cattaneo, L. Carini, *Degree four identities not implied by commutativity*, Comm. Alg. 16:339-356 (1988).

[H-7] I. R. Hentzel, D. P. Jacobs, L. A. Peresi, S. R. Sverchkov, *Solvability of the ideal of all weight zero elements in Bernstein algebras*, por aparecer.

[H-8] P. Holgate, *Genetic algebras satisfying Bernstein stationarity principle*, J. London Math. Soc. (2) 9:613-623 (1975).

[K] R. L. Kruse and D. T. Price, *Nilpotent rings*, Gordon and Breach, New York (1969).

[L-1] Lyubich, Y.I., *Basic concepts and theorems of the evolutionary genetics of free populations*, Russian Math. Surveys, 26:51-123 (1971).

[L-2] Lyubich, Y.I, *On the mathematical theory of heredity*, Sov. Math. Dokl., 14:579-581 (1973).

[L-3] Lyubich, Y.I., *Analogues of the Hardy-Weinberg principle, Genetika*, 9:139-144 (1973).

[L-4] Lyubich, Y.I., *Algebraic methods in evolutionary Genetics*, Biom. J., 20:511-529 (1978).

[L-5] Lyubich, Y.I., *Two-Level Bernsteinian populations*, Math. USSR-Sb., 24:575-591 (1974).

[L-6] Lyubich, Y. I., *A classification of nonexceptional Bernstein algebras of type (3,n-3)* (in Russian), Vestnik Harkov. 254, Meh. Mat. 84:36-42 (1984).

[L-7] Lyubich, Y. I., *A classification of some types of Bernstein algebras*, Selecta Math. Sov. 6:1-14 (1987).

[M] A. Micali, M. Ouattara, *Dupliquée d une algèbre et le théorème d Etherington*, Linear Alg. Appl. 153:193-207 (1991).

[O-1] R. W. K. Odoni, A. E. Stratton, *Structure of Bernstein algebras, Algèbres Génétiques*, Cahiers Math. Montpellier, 38:117-125 (1989).

[O-2] J. M. Osborn, *Identities of nonassociative algebras,* Canad. J. Math. 17:78-92 (1965).

[O-3] J. M. Osborn, *Commutative algebras satisfying an identiy of degree four*, Proc. Amer. Math. Soc. 16:1114-1120 (1965).

[O-4] J. M. Osborn, *Commutative nonassociative algebras and identities of degree four*, Canad. J. Math. 20:769-794 (1968).

[O-5] J. M. Osborn, *Varieties of algebras*, Adv. Math. 8:163-369 (1970).

[P-1] L. A. Peresi, *Álgebras comutativas satisfazendo uma identidade de grau quatro*, Tese de Livre-Docência, Universidade de São Paulo (1991).

[P-2] L. A. Peresi, *Nilpotency in Bernstein algebras*, Arch. Math. 56:437-439 (1991).

[R] D. Rutherford, *Substitutional analysis*, The Edinb. Univ. Press, Edinburgh (1948).

[S] R. D. Schafer, *An introduction to nonassociative algebras*, Academic Press (1966).

[W-1] S. Walcher, *Bernstein algebras wich are Jordan algebras*, Arch. Math. 50: 218-222 (1988).

[W-2] A.Worz-Busekros, *Algebras in Genetics*, Lectures Notes in Biomath. 36, Springer-Verlag, New York (1980).

[Z] K. A. Zevlakov et al, *Rings that are nearly associative*, Academic Press (1982).