Propriedades dos determinantes

Tarefa Básica – Julio Brandão CT III 350

1.

$$I = \begin{bmatrix} P & 2 & 2 \\ P & 4 & 4 \\ P & 4 & 1 \end{bmatrix} = 18 \qquad II = \begin{bmatrix} P & -1 & 2 \\ P & -2 & 4 \\ P & -2 & 1 \end{bmatrix} \begin{matrix} P \\ P \\ P \end{matrix} \begin{matrix} -1 \\ -2 \\ -2 \end{matrix}$$

$$-2 \begin{bmatrix} P & 2 & 2 & P & 2 \\ P & 4 & 4 & P & 4 \end{bmatrix} =$$

$$-1 \begin{bmatrix} P & 4 & 1 & P & 4 \end{bmatrix}$$

$4P + 8P + 8P - (8P + 16P + 2P) = -18$

$4P + 8P + 8P - 8P - 16P - 2P = -18$

$20P - 26P = -18$

$(-1) - 6P = -18 \ (-1)$

$6P = 18$

$P = 18/3$

$P = 3.$

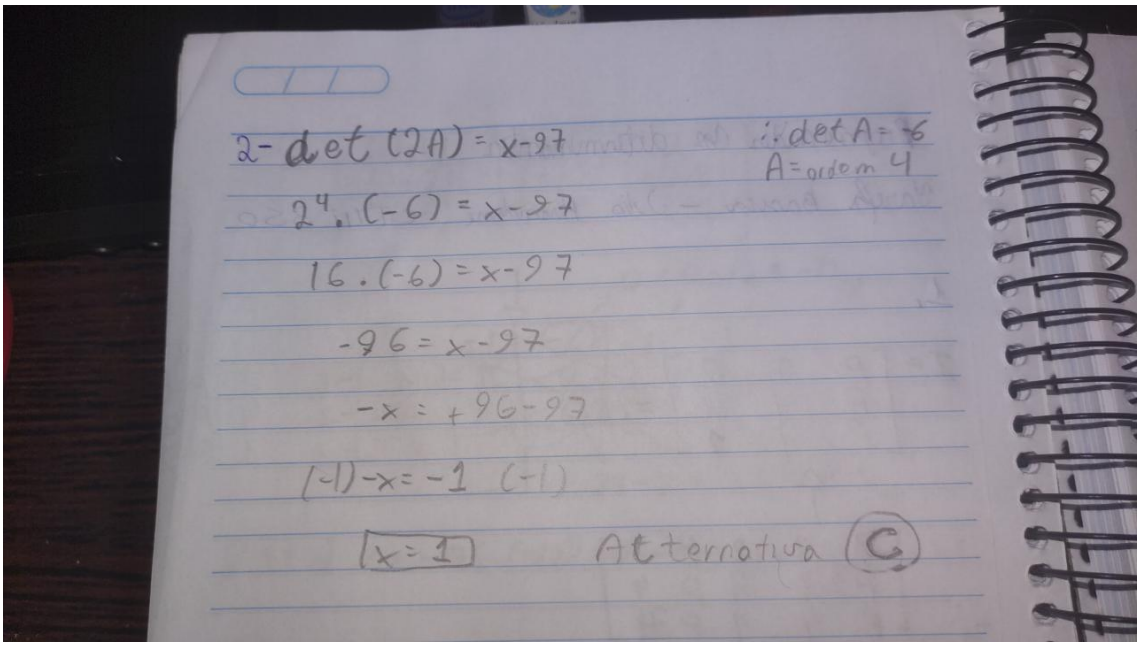
$$II = \begin{bmatrix} 3 & -1 & 2 & 3 & -1 \\ 3 & -2 & 4 & 3 & -2 \\ 3 & -2 & 1 & 3 & -2 \end{bmatrix} 2$$

$DT = -6 - 12 - 12 + 12 + 3 + 24$

$DT = -30 + 39$

$DT = 9$ //

Resposta: Alt E) $DT = 9.$



2- $\det(2A) = x - 97$ $\quad \therefore \det A = -6$, A = ordem 4

$2^4 \cdot (-6) = x - 97$

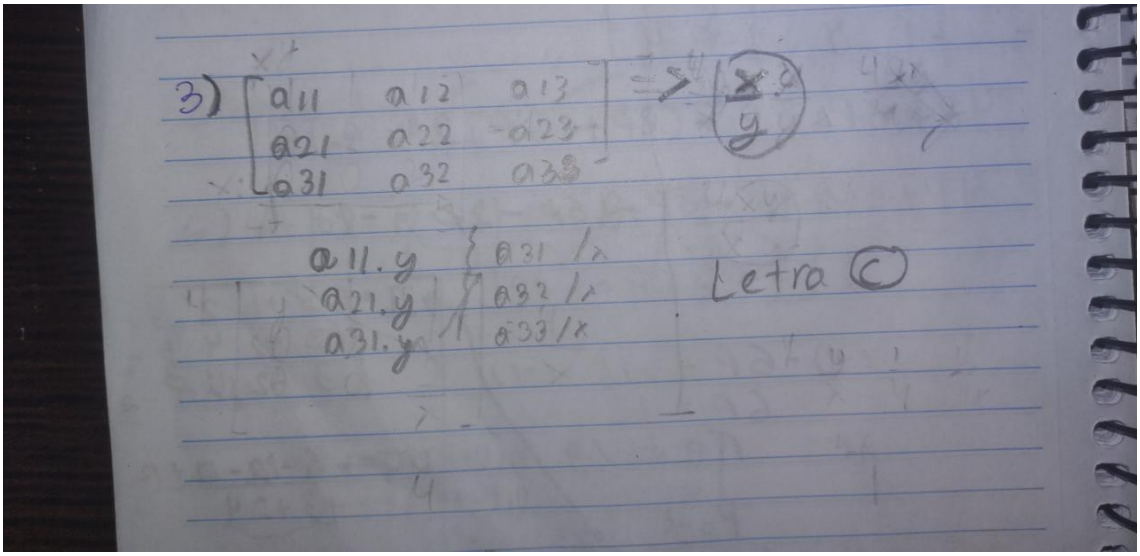
$16 \cdot (-6) = x - 97$

$-96 = x - 97$

$-x = +96 - 97$

$(-1) - x = -1 \ (-1)$

$\boxed{x = 1}$ Alternativa (C)



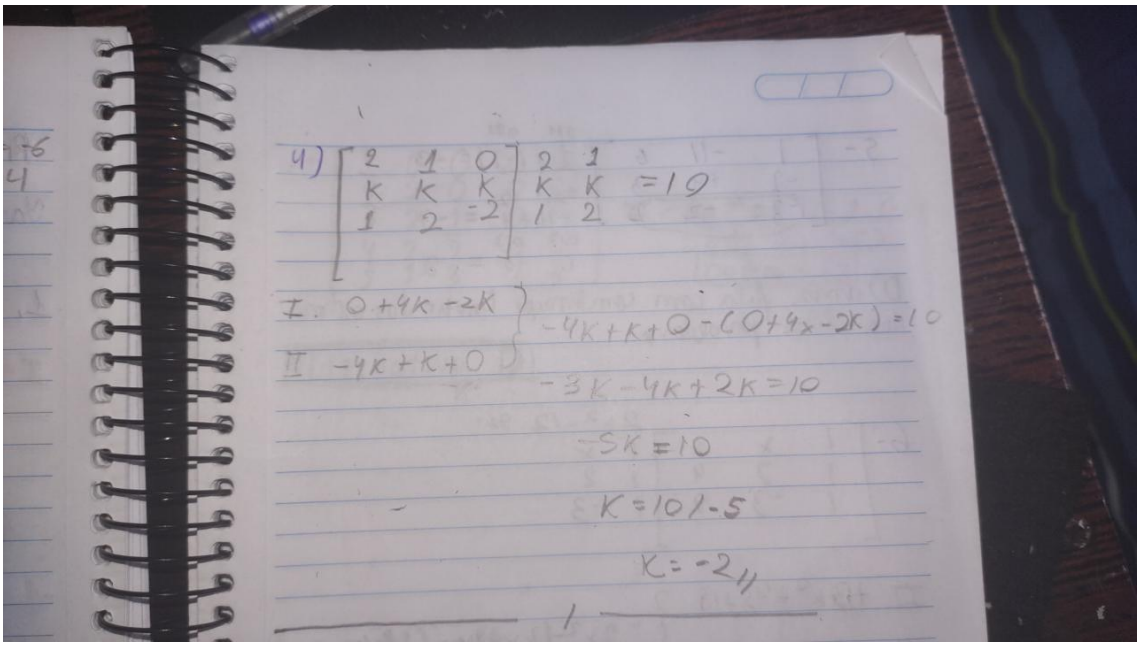
3) $\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & -a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \Rightarrow \begin{pmatrix} x \\ y \end{pmatrix}$

$a_{11} \cdot y \ \{a_{31}\ /x$

$a_{21} \cdot y \ \{a_{32}\ /x$

$a_{31} \cdot y \ \{a_{33}\ /x$

Letra (C)



4) $\begin{bmatrix} 2 & 1 & 0 \\ K & K & K \\ 1 & 2 & -2 \end{bmatrix} \begin{matrix} 2 & 1 \\ K & K \\ 1 & 2 \end{matrix} = 10$

I. $0+4K-2K$
II $-4K+K+0$

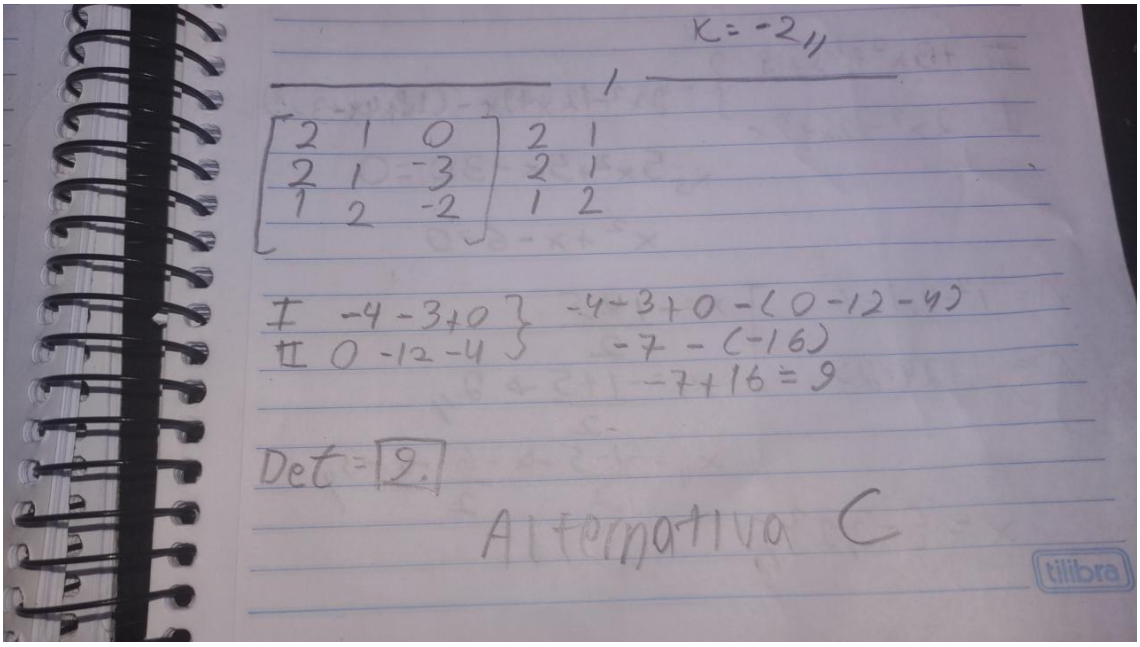
$-4K+K+0-(0+4K-2K)=10$

$-3K-4K+2K=10$

$-5K=10$

$K=10/-5$

$K=-2$



$K=-2$

$\begin{bmatrix} 2 & 1 & 0 \\ 2 & 1 & -3 \\ 1 & 2 & -2 \end{bmatrix} \begin{matrix} 2 & 1 \\ 2 & 1 \\ 1 & 2 \end{matrix}$

I $-4-3+0$
II $0-12-4$

$-4-3+0-(0-12-4)$

$-7-(-16)$

$-7+16=9$

Det = 9.

Alternativa C

5- $\begin{bmatrix} 1 & -11 & 6 \\ -2 & +4 & -3 \\ -3 & -7 & 2 \end{bmatrix}$

$a_{11}\ a_{21}$
$1 + (-2) = -3$
$a_{21}\ a_{22}$
$-11 + 4 = -7$
$a_{13}\ a_{23}$
$6 \quad -3 = 2$

D) uma fila com combinação linear das outras duas filas paralelas.

6- $\begin{bmatrix} 1 & x & x \\ 1 & 2 & 4 \\ 1 & -3 & 9 \end{bmatrix} \begin{matrix} 2x^2-12\ 9x \\ 1\ x \\ 1\ 2 \\ 1\ -3 \end{matrix}$

II $-3x^2+4x+18$
I: $2x^2-12x+9x$
$\} -2x^2-12x+9x-(18+4x-3x^2)$

$\div 5 \quad 5x^2+5x-30=0$

$x^2+x-6=0$

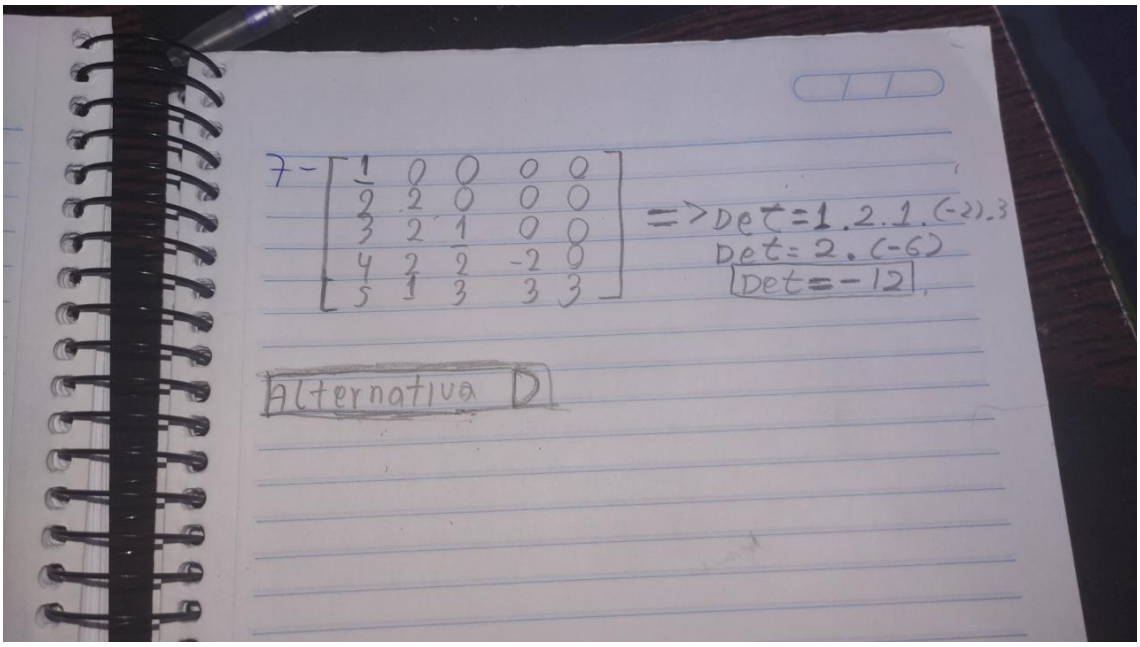
$\Delta = 1^2-4.1.-6$
$\Delta = 1+24=25$

$x_1 = \frac{-1 \pm 5}{2}$

$x_1 = \frac{-1+5}{2} \rightarrow 2$ //

$x_{11} = \frac{-1-5}{2} \rightarrow \frac{-6}{2} \rightarrow -3$ //

$x = \{-3, 2\}$ //


7-
$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 2 & 2 & 0 & 0 & 0 \\ 3 & 2 & 1 & 0 & 0 \\ 4 & 2 & 2 & -2 & 0 \\ 5 & 1 & 3 & 3 & 3 \end{bmatrix}$
=> Det = 1 . 2 . 1 . (-2) . 3
Det = 2 . (-6)
Det = -12
Alternativa D