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Determinantes - TAREFA BÁSICA

01 a) $\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}$

$10 - 3 = 7$

b) $\begin{bmatrix} -2 & -4 \\ 3 & 6 \end{bmatrix}$

$-12 - (-12) = 0$

c) $\begin{bmatrix} 3 & -1 & 1 \\ 2 & 1 & -1 \\ 1 & 4 & -2 \end{bmatrix}$ $\begin{matrix} 3 & -1 \\ 2 & 1 \\ 1 & 4 \end{matrix}$

$1 \quad -12 \quad 4 \quad -6 \quad 1 \quad 8$

$-7 \qquad 3$

$3 - (-7) = 10$

d) $\begin{bmatrix} 3 & 2 & -1 \\ 2 & 3 & 1 \\ 1 & 1 & 4 \end{bmatrix}$ $\begin{matrix} 3 & 2 \\ 2 & 3 \\ 1 & 1 \end{matrix}$

$-3 \quad 3 \quad 16 \quad 36 \quad 2 \quad -2$

$16 \qquad 36$

$36 - 16 = 20$

D S T Q Q S S

(02) (MACK)

$A = (a_{ij})$

$a_{ij} \begin{cases} -3, \text{ se } i = j \\ 0, \text{ se } i \neq j \end{cases}$

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} = \begin{bmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & -3 \end{bmatrix}$$

-27

$-3.(-3).(-3) = -27$

$a_{11} = -3$ $\quad a_{21} = 0$

$a_{22} = -3$ $\quad a_{31} = 0$

$a_{33} = -3$ $\quad a_{12} = 0$

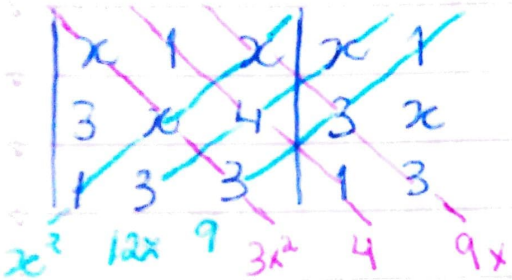
$a_{32} = 0$

$a_{13} = 0$

$a_{23} = 0$

03 (FUVEST)

$$\begin{vmatrix} x & 1 & x \\ 3 & x & 4 \\ 1 & 3 & 3 \end{vmatrix} = -3$$



$$3x^2 + 4 + 9x - x^2 - 12x - 9 = -3$$

$$2x^2 - 3x - 2 = 0$$

$$x' = 2 //$$

$$x'' = -\frac{1}{2} //$$

$\Delta = b^2 - 4.a.c$

$\Delta = (-3)^2 - 4.(2).(-2)$

$\Delta = 9 + 16$

$\Delta = 25$

$$x = \frac{-b \pm \sqrt{\Delta}}{2.a}$$

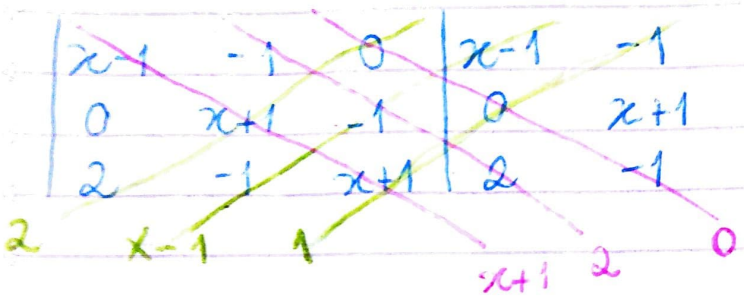
$$x = \frac{-(-3) \pm \sqrt{25}}{2.2}$$

$$x' = \frac{3+5}{4} = \frac{8}{4} = 2 //$$

$$x'' = \frac{3-5}{4} = \frac{2:2}{4:2} = -\frac{1}{2} //$$

(04) (MACK)

$$\begin{vmatrix} x-1 & -1 & 0 \\ 0 & x+1 & -1 \\ 2 & -1 & x+1 \end{vmatrix} = 2$$



$$x+1+2+0-2-x-1-1=0$$

$$S=-1$$

(5) (UEL)

$A=(a_{ij})_{3\times 2}$

$B=(b_{jk})_{2\times 3}$

$a_{11}=2.1-3.1=-1$ $\quad b_{11}=1-1=0$

$a_{12}=2.1-3.2=-4$ $\quad b_{12}=2-1=1$

$a_{21}=2.2-3.1=1$ $\quad b_{13}=3-1=2$

$a_{22}=2.2-3.2=-2$ $\quad b_{21}=1-2=-1$

$a_{31}=2.3-3.1=3$ $\quad b_{22}=2-2=0$

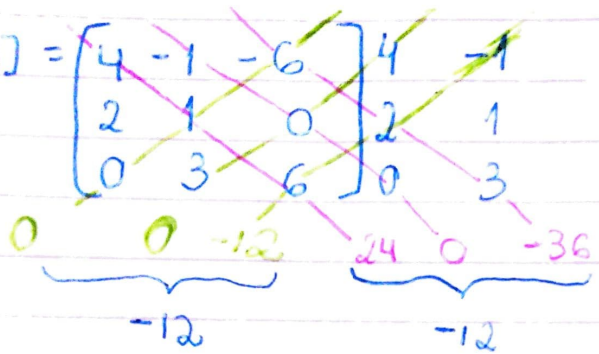
$a_{32}=2.3-3.2=0$ $\quad b_{23}=3-2=1$

$$A=\begin{bmatrix} -1 & -4 \\ 1 & -2 \\ 3 & 0 \end{bmatrix} \times B=\begin{bmatrix} 0 & 1 & 2 \\ -1 & 0 & 1 \end{bmatrix} = \begin{bmatrix} ab_{11} & ab_{12} & ab_{13} \\ ab_{21} & ab_{22} & ab_{23} \\ ab_{31} & ab_{32} & ab_{33} \end{bmatrix}$$

Continuação exercício 5.

$$A \cdot B = \begin{bmatrix} 4 & -1 & -6 \\ 2 & 1 & 0 \\ 0 & 3 & 6 \end{bmatrix}$$

$\det[A.B] =$



$-12 - (-12) = 0$

⑥ $A = \begin{bmatrix} 2 & 0 & 1 \\ -1 & 1 & 0 \end{bmatrix}$ e $B = \begin{bmatrix} 1 & -1 \\ -1 & 1 \\ 0 & 2 \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$

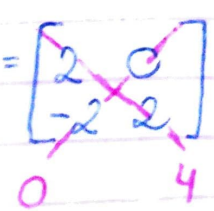
$a_{11} = 2.1 + 0.(-1) + 1.0 = 2$

$a_{12} = 2.(-1) + 0.1 + 1.2 = 0$

$a_{21} = -1.1 + 1.(-1) + 0.0 = -2$

$a_{22} = -1.(-1) + 1.1 + 0.2 = 2$

$AB = \begin{bmatrix} 2 & 0 \\ -2 & 2 \end{bmatrix}$



$0 - 4 = -4$