



02 -  $A = (a_{ij})$

$a_{ij} = \begin{cases} -3, & \text{se } i = j \\ 0, & \text{se } i \neq j \end{cases}$ , então determinante A vale:

$a_{11} = -3$

$a_{12} = 0$

$a_{13} = 0$

$a_{21} = 0$

$a_{22} = -3$

$a_{23} = 0$

$a_{31} = 0$

$a_{32} = 0$

$a_{33} = +3$

$A = \begin{vmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & 3 \end{vmatrix}$

$(-27)$

$(0)$

$\det A = -27$

Resp: A

03 -

$\begin{vmatrix} x & 1 & x \\ 3 & x & 4 \\ 1 & 3 & 8 \end{vmatrix} = -3$

$\begin{vmatrix} x & 1 & x & x & 1 \\ 3 & x & 4 & 3 & x \\ 1 & 3 & 8 & 1 & 3 \end{vmatrix}$

$3x^2 + 4 + 9x - x^2 - 12x - 9 = -3$   $3x^2 + 4 + 9x$   
 $2x^2 + 3x - 5 = -3$   
 $2x^2 + 3x - 2 = 0$   $x^2 - 12x - 9$

$x_{1,2} = \frac{-(-3) \pm \sqrt{25}}{2}$   $x_1 = \frac{-(-3) + 5}{2} = 2$

$x_{1,2} = \frac{-(-3) \pm 5}{2}$

$x_2 = \frac{-(-3) - 5}{2} = -1$

Resp: A

04-

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

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

$$x-1 = 2$$

$$x = 2 + 1$$

$$x = 3$$

$$x+1+2 = 2$$

$$x+3 = 2$$

$$x = 2 - 3$$

$$x = -1$$

$$S = 1 + (-1) = 0$$

$$S = -1 + 1 = 0$$

$$R = C$$

5 -  $A = (a_{ij})_{3 \times 2}$ , tal que  $a_{ij} = 2i - 3j$  e  $B = (b_{jk})_{2 \times 3}$  tal que  $b_{jk} = k - j$ . Determinante  $A \cdot B$  igual a:

$$a_{11} = 2 \cdot 1 - 3 \cdot 1 = -1$$

$$b_{11} = 1 - 1 = 0$$

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

$$B = \begin{bmatrix} 0 & 1 & 2 \\ -1 & 0 & 1 \end{bmatrix}$$

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

$$\det A \cdot B = -12 - (-12)$$

$$\det A \cdot B = 0$$

$$R = C$$

$$(-12) - (+24 - 36) = (-12)$$

06-

$$A = \begin{bmatrix} 2 & 0 & -1 \\ -1 & 1 & 0 \end{bmatrix} \quad \text{e} \quad B = \begin{bmatrix} 1 & -1 \\ -1 & 1 \\ 0 & 2 \end{bmatrix}$$

Det A.B é igual:

$$A.B = \begin{bmatrix} 2 & -4 \\ -2 & 2 \end{bmatrix}$$

$$\text{Det } A.B = 2 \cdot 2 - (-4 \cdot -2)$$

$$\text{Det } A.B = 4 - 8 = -4$$

$$\text{Det } A.B = -4$$

$$R = \emptyset$$