

S T Q Q S S D

## Tarefa básica

### CALCULO GERAL DE DETERMINANTES

$$\textcircled{1} \quad A = \begin{vmatrix} 1 & 0 \\ 0 & 1 & 1 \\ 0 & -1 & 1 \end{vmatrix}$$

escolhida

1 cof( $a_{11}$ )

$$1. \begin{vmatrix} 1 & 1 \\ -1 & 1 \end{vmatrix} \rightarrow 1 - (-1) = 2$$

0 cof( $a_{21}$ )

0 cof( $a_{31}$ )

$$\det A = 2$$

$$B = \begin{vmatrix} 1 & 0 & 0 & 3 \\ d & 1 & -1 & 4 \\ 0 & 0 & 0 & 3 \\ 0 & 1 & 1 & 4 \end{vmatrix}$$

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1 cof( $b_{11}$ )

$$1. \begin{vmatrix} 1 & -1 & 4 \\ 0 & 0 & 3 \\ 1 & 1 & 4 \end{vmatrix} \rightarrow 1 - 0 + 0 = 1$$

$$0 + 3 + 0 = 3$$

$$0 - 3 + 0 = -3$$

$$-3 - 3 = -6$$

d. cof( $b_{21}$ )

$$d. \begin{vmatrix} 0 & 0 & 3 & 0 & 0 \\ 0 & 0 & 3 & 0 & 0 \\ 1 & 1 & 4 & 1 & 1 \end{vmatrix}$$

$$0 + 0 + 0 = 0 \quad 0 + 0 + 0 = 0$$

$$0 - 0 = 0$$

\* Resposta =  $\det A = 2$  e

$$\det B = -6$$

$$\det B = -6$$

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$$\begin{array}{|c|c|c|c|c|} \hline
 2 & x^2 & 0 & x & -1/10 \\ \hline
 4 & 5 & 0 & 5 & 2 \\ \hline
 10 & 0 & 4 & 2 \\ \hline
 1 & 1 & 1 & 1 \\ \hline
 \end{array}
 \rightarrow 1. \text{ cof}(a_{12}) = 0$$

$$\begin{array}{|c|c|c|c|c|} \hline
 1 & x^2 & x & -1/10 & x^2 & x \\ \hline
 4 & 5 & 2 & & 4 & 5 \\ \hline
 10 & 4 & 2 & & 10 & 4 \\ \hline
 \end{array}$$

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$$-56/10 + 8x^2 + 15x \cdot 10x^2 + 20x - 36/10$$

$$\det = 10x^2 + 20x - 3 - (-5 + 8x^2 + 15x) = 0$$

$$10x^2 + 20x - 3 + 5 - 8x^2 - 15x = 0$$

$$2x^2 + 5x + 2 = 0$$

$$a = 2 \quad b = 5 \quad c = 2$$

$$x = \frac{-b \pm \sqrt{9}}{2 \cdot a}$$

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

$$x = \frac{-5 \pm 3}{4}$$

$$\Delta = 5^2 - 4 \cdot 2 \cdot 2$$

$$\Delta = 25 - 16$$

$$\Delta = 9$$

$$x' = -5 - 3/4 = -2$$

$$x'' = -5 + 3/4 = -1/2$$

$$x = \{-1/2, -2\}$$

$$\begin{array}{|c|c|c|c|c|} \hline
 3 & x & 0 & 0 & 3 \\ \hline
 -1 & x & 0 & 0 \\ \hline
 0 & -1 & x & 1 \\ \hline
 0 & 0 & -1 & -2 \\ \hline
 \end{array}
 \rightarrow x \cdot \text{cof}(a_{11}) = 0 - x + 0$$

$$\begin{array}{|c|c|c|c|c|} \hline
 x & 0 & 0 & x & 0 \\ \hline
 -1 & x & 1 & -1 & x \\ \hline
 0 & -1 & -2 & 0 & -1 \\ \hline
 \end{array}
 \rightarrow -2x^2 - (-x) = -2x^2 + x$$

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$$-2x^2 + 0 + 0 = -2x^2 + x$$

$$-2x^3 + x^2$$

$$-1 \cdot \text{cof}(a_{21}) = 0 + 0 + 0$$

i+j

$$\begin{array}{|c|c|c|c|c|} \hline
 & 0 & 0 & 3 & 0 & 0 \\ \hline
 -1 & x & 1 & -1 & x & \rightarrow 3 (\text{l\'ımpar}) \\ \hline
 0 & -1 & -2 & 0 & -1 \\ \hline
 \end{array}$$

det = -2x^3 + x^2 + 3

Ent\~ao, -3

Alternativa A)

$$0 + 0 + 3$$

$$-1 \cdot (-3) = 3$$

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|     |                                                                                                                                       |
|-----|---------------------------------------------------------------------------------------------------------------------------------------|
| (4) | $\begin{vmatrix} x & 1 & 0 & 0 & 0 \\ 0 & x & 1 & 0 & 0 \\ 0 & 0 & x & 1 & 0 \\ 0 & 0 & 0 & x & k \\ 0 & 0 & 0 & 1 & x \end{vmatrix}$ |
|-----|---------------------------------------------------------------------------------------------------------------------------------------|

$$f(x) = \det A \quad e \quad f(-2) = 8$$

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$$x \cdot \text{cof}(11)$$

|   |   |   |   |   |
|---|---|---|---|---|
| x | 1 | 0 | 0 |   |
| 0 | x | 1 | 0 |   |
| 0 | 0 | x | 1 |   |
| 0 | 0 | 0 | x | k |

$$\rightarrow x \cdot \begin{vmatrix} x & 1 & 0 & x & 1 \\ 0 & x & k & 0 & x \\ 0 & 1 & x & 0 & 1 \end{vmatrix} \rightarrow x^3 - xk$$

$x^3 + 0 + 0$

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$$x \cdot (x \cdot (x^3 - xk))$$

$$x^2 \cdot (x^3 - xk)$$

$$x^5 - x^3 k \rightarrow \det A$$

$$f(-2) = 8 \quad f(x) = \det A$$

$$f(-2) = x^5 - x^3 k = 8$$

$$f(-2) = (-2)^5 - (-2)^3 k = 8$$

$$-32 + 8k = 8$$

$$8k = 8 + 32$$

$$8k = 40$$

$$k = \frac{40}{8}$$

$$k = 5$$

alternativa D)