Tarefa básica - Determinantes - Cálculo geral

01. (FUVEST) $A = \begin{bmatrix} 1 & a & 0 \\ 0 & 1 & 1 \\ 0 & -1 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 0 & 0 & 3 \\ a & 1 & 1 & 1 \\ 0 & 0 & 0 & 3 \\ 0 & 1 & 1 & 4 \end{bmatrix}$

1. cof. (a_{22})

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

1. cof. (a_{42})

$000-300$

$(-3)+(-3)=-6 \rightarrow$ det B

$\begin{bmatrix} 1 & 0 & 3 \\ 0 & 0 & 3 \\ 0 & 1 & 1 \end{bmatrix}$ $\begin{matrix} 1 & 0 \\ 0 & 0 \\ 0 & 1 \end{matrix}$ $0-(+3)=-3$

1 det. $A = 1-(-1)=2$.

02. (FATEC)

$\begin{vmatrix} x^2 & 0 & x & -10 \\ 7,5 & 0 & 5 & 2 \\ 10 & 0 & 4 & 2 \\ 1 & 1 & 1 & 1 \end{vmatrix} = 0$ → a resolver.

$-5 \quad 8x^2 \quad 15x$

1. $\begin{matrix} x^2 & x & -10 & x^2 & x \\ 7,5 & 5 & 2 & 7,5 & 5 \\ 10 & 4 & 2 & 10 & 4 \end{matrix}$

$10x^2 \quad 20x \quad -3$

$(10x^2+20x-3)-(8x^2+15x-5)$

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

$\Delta = (5)^2 - 4.2.2$

$\Delta = 25-16$

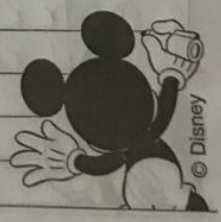
$\Delta = 9$

$x = \frac{-(5) \pm \sqrt{9}}{2.2}$

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

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

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



tilibra

03. (PUCSP)

$$\begin{vmatrix} x & 0 & 0 & 3 \\ -1 & x & 0 & 0 \\ 0 & -1 & x & 1 \\ 0 & 0 & 1 & 2 \end{vmatrix}$$

↳ escolhido

$x \cdot cof(11)$

$$\begin{vmatrix} x & 0 & -x & 0 \\ -1 & x & x & x \\ 0 & -1 & 0 & -x \end{vmatrix} \quad -2x^2 - (-x) \quad -2x^2 + x$$

$-2x^2 \; 0 \; 0$

$x \cdot (-2x^2 + x)$

$-2x^3 + x^2$

$-1 \cdot cof(21) \rightarrow 3$ (ímpar)

$$\begin{vmatrix} 0 & 0 & 3 & 0 \\ -1 & x & x & x \\ 0 & -1 & 0 & -1 \end{vmatrix} \quad 3 \rightarrow -3$$

$0 \; 0 \; 3$

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

(A) $-2x^3 + x^2 + 3$

04. (UFSCAR)

$$\begin{vmatrix} x & 1 & 0 & 0 & 0 \\ 0 & x & 1 & 0 & 0 \\ 0 & 0 & x & 1 & 0 \\ 0 & 0 & 0 & x & K \\ 0 & 0 & 0 & 1 & x \end{vmatrix} \quad x^3 \cdot (x^2 - K)$$

$f(x) = x^5 - Kx^3$

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

$f(-2) = -32 + 8K = 8$

$f(-2) = 8K = 8 + 32$

$f(-2) = 8K = 40$

$f(-2) = K = \frac{40}{8}$

$K = 5$ Letra D