Calculo geral determinantes

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01- Determinantes:

$$A = \begin{vmatrix} 1 & a & 0 \\ 0 & 1 & 1 \\ 0 & -1 & 1 \end{vmatrix} \begin{matrix} 1 & a \\ 0 & 1 \\ 0 & -1 \end{matrix}$$

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

$1 \quad -1$

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

$1 \cdot Cof(a_{11})$

$$1 \cdot \begin{vmatrix} 1 & -1 & 4 \\ 0 & 0 & 3 \\ 1 & 1 & 4 \end{vmatrix} \begin{matrix} 1 & -1 \\ 0 & 0 \\ 1 & 1 \end{matrix}$$

$-3 - 3 = -6$

$a \cdot Cof(a_{21})$

$$a \cdot \begin{vmatrix} 0 & 0 & 3 \\ 0 & 0 & 3 \\ 1 & 1 & 4 \end{vmatrix} \begin{matrix} 0 & 0 \\ 0 & 0 \\ 1 & 1 \end{matrix}$$

0

$a \cdot 0 = 0$

$\det A = 2$
$\det B = -6$

02) (Fatec) Calcule x na equação:

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

$1 . cof(a_{42})$

$$1 \cdot \begin{vmatrix} x^2 & x & -0,1 \\ 7,5 & 5 & 2 \\ 10 & 4 & 2 \end{vmatrix} \begin{matrix} x^2 & x \\ 7,5 & 5 \\ 10 & 4 \end{matrix}$$

$\cancel{10}x^2 + \cancel{20}x - 3 + 5 - \cancel{8}x^2 - \cancel{15}x = 0$

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

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

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

$\Delta = 9$

$x = \frac{-5 \pm \sqrt{9}}{2 . 2}$

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

$x_1 = \frac{-5 + 3}{4} = -\frac{1}{2}$

$x_2 = \frac{-5 - 3}{4} = -2$

R: $x = -\frac{1}{2}$ ou $x = -2$

03) (PUCSP) o Determinante

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

Representa o polinômio:

$x \cdot cof(a_{22})$ $\qquad$ $-1 \cdot cof(a_{32})$

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

-3

$-2x^2 - (-x)$

$-1 \cdot -3 = -3$

$= 3$

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

$-2x^3 + x^2$

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

04-(UFSCAR) matriz A $f: \mathbb{R} \to \mathbb{R}$ tal que $F(x) = \det A$ e $f(-2) = 8$, então K vale:

$$\begin{vmatrix} x & 1 & 0 & 0 & 0 \\ 0 & x & 1 & 0 & 0 \\ 0 & 0 & x & 1 & 0 \\ 0 & 0 & 0 & x & K \\ 0 & 0 & 0 & 1 & x \end{vmatrix}$$

$x \cdot x \cdot x = x^3 \cdot ($

$$\begin{vmatrix} x & k \\ 1 & x \end{vmatrix} = x^2 - K$$

$\det A = x^3 \cdot (x^2 - k)$

$f(x) = \det A$

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

$f(-2)\ -8\ (4 - K) = 8$

INCOMPLETO