

Lista sobre Cálculo Geral de Determinantes

01-

$$\begin{vmatrix} 1 & a & 0 & 1 & a \\ a & 0 & 1 & 0 & 1 \\ 0 & -1 & 1 & 0 & -1 \\ 1 & 0 & 0 & 1 & 1 \end{vmatrix} = 1 - (-1) = 2$$

escalado

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

escalado

$$\begin{vmatrix} 1 & 0 & 0 & 3 \\ 0 & 1 & -1 & 4 \\ 0 & 0 & 0 & 3 \\ 0 & 1 & 1 & 4 \end{vmatrix} = 1 - (-1) = 2$$

escalado

$$3 \cdot 2 = 6$$

02-

$$\begin{vmatrix} x^2 & 0 & x & -10 \\ 7.5 & 2 & 5 & 2 \\ 10 & 0 & 4 & 2 \\ 1 & 1 & 1 & 1 \end{vmatrix} = 0$$

escalado

$$\begin{vmatrix} x^2 & 0 & x & -10 \\ 7.5 & 2 & 5 & 2 \\ 10 & 0 & 4 & 2 \\ 1 & 1 & 1 & 1 \end{vmatrix} = 10x^2 + 20x - 3$$

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

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

$$\Delta = 15^2 - 4 \cdot 2 \cdot 2 = 9$$

$$\Delta = 25 - 16 = 9$$

$$\Delta = 9$$

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

$$x_1 = \frac{-2}{4} = -\frac{1}{2}$$

$$x_2 = \frac{-8}{4} = -2$$

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

03-

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

escalado

$$\begin{vmatrix} x & 0 & 0 & 3 \\ -1 & x & 0 & 0 \\ 0 & -1 & x & 1 \\ 0 & 0 & -1 & -2 \end{vmatrix} = -2x^3 + x^2 + 3 \rightarrow A$$