



$$J. \begin{bmatrix} 3 & 7 \\ 7 & 3 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \end{bmatrix} = K \cdot \begin{bmatrix} x \\ y \end{bmatrix}$$

$$\begin{pmatrix} 8x \\ 8y \end{pmatrix} = K \cdot \begin{pmatrix} x \\ y \end{pmatrix}$$

$$K = \begin{pmatrix} 8x \\ 8y \end{pmatrix} \div \begin{pmatrix} x \\ y \end{pmatrix}$$

$$K = 8$$

Letra E.

$$2. \begin{cases} 3x + 4y - z = 0 \\ 2x - y + 3z = 0 \\ x + y = 0 \end{cases}$$

$$D = \begin{pmatrix} 3 & 4 & -1 & | & 3 & 4 \\ 2 & -1 & 3 & | & 2 & -1 \\ 1 & 1 & 0 & | & 1 & 1 \end{pmatrix} \rightarrow 10 - 10 = 0$$

$$D_x = \begin{pmatrix} 4 & -1 & 0 & | & 4 & -1 \\ -1 & 3 & 0 & | & -1 & 3 \\ 1 & 0 & 0 & | & 1 & 0 \end{pmatrix} \rightarrow 0 - 0 = 0$$

$$D_y = \begin{pmatrix} 3 & -1 & 0 & | & 3 & -1 \\ 2 & 3 & 0 & | & 2 & 3 \\ 1 & 0 & 0 & | & 1 & 0 \end{pmatrix} \rightarrow 0 - 0 = 0$$

$$D_z = \begin{pmatrix} 3 & 4 & 0 & | & 3 & 4 \\ 2 & -1 & 0 & | & 2 & -1 \\ 1 & 1 & 0 & | & 1 & 1 \end{pmatrix} \rightarrow 0 - 0 = 0$$

$$x = \frac{D_x}{D} = \frac{0}{0} \quad y = \frac{D_y}{D} = \frac{0}{0} \quad z = \frac{D_z}{D} = \frac{0}{0}$$

Letra D.

$$3 \begin{cases} x+y+z=0 \\ Kx+3y+4z=0 \\ x+Ky+3z=0 \end{cases}$$

$$\begin{pmatrix} 1 & 1 & 1 \\ K & 3 & 4 \\ 1 & K & 3 \end{pmatrix} \begin{matrix} 3+4K+3K=7K+3 \\ 0+4+K^2=K^2+33 \\ 0+4+K^2=K^2+33 \end{matrix} \rightarrow K^2+33-7K+3 \rightarrow K^2-7K+10$$

$$K^2-7K+10=0$$

$$\Delta=b^2-4ac$$

$$a=1$$

$$\Delta=(-7)^2-4 \cdot 1 \cdot 10$$

$$b=-7$$

$$\Delta=49-40$$

$$c=10$$

$$\Delta=9$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{7 \pm 3}{2}$$

$$x' = \frac{10}{2} = 5$$

$$x'' = \frac{4}{2} = 2$$

$$x' + x'' = 5 + 2 = 7$$

Letra D.

$$4. \begin{cases} x + kz = 0 \\ kx + y = 0 \\ x + ky = 0 \end{cases}$$

$$\begin{pmatrix} k & 1 \\ 1 & k \end{pmatrix} \rightarrow \begin{matrix} k^2 - 1 \\ k - 1 \end{matrix}$$

$$\rightarrow \left(\begin{array}{ccc|c} 1 & 0 & k & 0 \\ k & 1 & 0 & 0 \\ 1 & k & 0 & 0 \end{array} \right) \sim \left(\begin{array}{ccc|c} 1 & 0 & k & 0 \\ k & 1 & 0 & 0 \\ 0 & k-k & 0 & 0 \end{array} \right) \sim \left(\begin{array}{ccc|c} 1 & 0 & k & 0 \\ k & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{array} \right)$$

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S.P. Indeterminada

$$k=1, k=-1 \text{ e } k=0$$

$$kx + ky - kz = 0$$

$$k(x+y+z) = 0$$

$$k=0 \quad x+y+z=0$$

Solução Única

$$k \neq 1, k \neq -1 \text{ e } k \neq 0$$

Letra A.

$$5. \begin{cases} -x + 2y - 3 = 0 \\ 3x - y + 3 = 0 \\ 2x - 4y + 6 = 0 \end{cases}$$

$$3x - y + 3 = 0$$

$$-y = -3x - 3 \quad (-1)$$

$$y = 3x + 3$$

$$y = 3x + 3$$

$$y = 3 \cdot \left(\frac{-3}{5} \right) + 3$$

$$y = -\frac{9}{5} + 3$$

$$\frac{5y}{5} = \frac{-9 + 15}{5}$$

$$5y = 6$$

$$y = \frac{6}{5}$$

→ determinado

$$-x + 2y - 3 = 0$$

$$-x + 2 \cdot (3x + 3) - 3 = 0$$

$$-x + 6x + 6 - 3 = 0$$

$$5x + 3 = 0$$

$$5x = -3$$

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

determinado

$$S = \left\{ x = \frac{-3}{5} ; y = \frac{6}{5} \right\}$$

Letra B.