

Aluno (a):

Nº

ATIVIDADE:

RESOLUÇÃO - LISTA 08

01.

$$D = \begin{vmatrix} 2 & 3 & -1 \\ -6 & -1 & 2 \\ 1 & -4 & 3 \end{vmatrix} = 45$$

$$D_x = \begin{vmatrix} 7 & 3 & -1 \\ 4 & -1 & 2 \\ 6 & -4 & 3 \end{vmatrix} = 45$$

$$D_y = \begin{vmatrix} 2 & 7 & -1 \\ -6 & 4 & 2 \\ 1 & 6 & 3 \end{vmatrix} = 180$$

$$D_z = \begin{vmatrix} 2 & 3 & 7 \\ -6 & -1 & 4 \\ 1 & -4 & 6 \end{vmatrix} = 315$$

$$x = \frac{D_x}{D} = \frac{45}{45} = 1$$

$$y = \frac{D_y}{D} = \frac{180}{45} = 4$$

$$z = \frac{D_z}{D} = \frac{315}{45} = 7$$

Portanto, $S = \{(1, 4, 7)\}$.

02.

$$D = \begin{vmatrix} 1 & 3 & -1 \\ 1 & -1 & 1 \\ 1 & 2 & 2 \end{vmatrix} = -10$$

$$D_x = \begin{vmatrix} 4 & 3 & -1 \\ 2 & -1 & 1 \\ 11 & 2 & 2 \end{vmatrix} = -10$$

$$D_y = \begin{vmatrix} 1 & 4 & -1 \\ 1 & 2 & 1 \\ 1 & 11 & 2 \end{vmatrix} = -20$$

$$D_z = \begin{vmatrix} 1 & 3 & 4 \\ 1 & -1 & 2 \\ 1 & 2 & 11 \end{vmatrix} = -30$$

$$x = \frac{D_x}{D} = \frac{-10}{-10} = 1$$

$$y = \frac{D_y}{D} = \frac{-20}{-10} = 2$$

$$z = \frac{D_z}{D} = \frac{-30}{-10} = 3$$

Portanto, $S = \{(1, 2, 3)\}$.

03.

Sejam x, y e z, as quantidades de caixas amarelas, verdes e azuis, respectivamente, temos o sistema

$$\begin{cases} 2x + 2y + z = 12 \\ 8x + 20y + 10z = 72 \\ 10x + 16y + 14z = 84 \end{cases}$$

$$D = \begin{vmatrix} 2 & 2 & 1 \\ 8 & 20 & 10 \\ 10 & 16 & 14 \end{vmatrix} = 144$$

$$D_x = \begin{vmatrix} 12 & 2 & 1 \\ 72 & 20 & 10 \\ 84 & 16 & 14 \end{vmatrix} = 576$$

$$D_y = \begin{vmatrix} 2 & 12 & 1 \\ 8 & 72 & 10 \\ 10 & 84 & 14 \end{vmatrix} = 144$$

$$D_z = \begin{vmatrix} 2 & 2 & 12 \\ 8 & 20 & 72 \\ 10 & 16 & 84 \end{vmatrix} = 288$$

$$x = \frac{D_x}{D} = \frac{576}{144} = 4$$

$$y = \frac{D_y}{D} = \frac{144}{144} = 1$$

$$y = \frac{D_y}{D} = \frac{288}{144} = 2$$

As quantidades de caixas amarelas, verdes e azuis, são, respectivamente, 4, 1 e 2.

04.

$$D = \begin{vmatrix} 1 & 2 \\ 2 & -1 \end{vmatrix} = -5$$

$$D_x = \begin{vmatrix} 4 & 2 \\ -7 & -1 \end{vmatrix} = 10$$

$$D_y = \begin{vmatrix} 1 & 4 \\ 2 & -7 \end{vmatrix} = -15$$

$$x = \frac{D_x}{D} = \frac{10}{-5} = -2$$

$$y = \frac{D_y}{D} = \frac{-15}{-5} = 3$$

Portanto, $S = \{(-2, 3)\}$.

05.

$$D = \begin{vmatrix} 1 & 1 & 1 \\ 1 & -1 & 1 \\ 1 & 1 & -1 \end{vmatrix} = 4$$

$$D_x = \begin{vmatrix} 8 & 1 & 1 \\ 12 & -1 & 1 \\ 2 & 1 & -1 \end{vmatrix} = 28$$

$$D_y = \begin{vmatrix} 1 & 8 & 1 \\ 1 & 12 & 1 \\ 1 & 2 & -1 \end{vmatrix} = -8$$

$$D_z = \begin{vmatrix} 1 & 1 & 8 \\ 1 & -1 & 12 \\ 1 & 1 & 2 \end{vmatrix} = 12$$

$$x = \frac{D_x}{D} = \frac{28}{4} = 7$$

$$y = \frac{D_y}{D} = \frac{-8}{4} = -2$$

$$z = \frac{D_z}{D} = \frac{12}{4} = 3$$

Portanto, $S = \{(7, -2, 3)\}$.