

Simón Andres Trillos Almanza

Metodo Cramer

$$\begin{array}{l} X + Y + Z = 37 \quad 1 \\ -X - Y + 3Z = 3 \quad 2 \\ -X + Y - Z = -13 \quad 3 \end{array}$$

$$\begin{array}{ccc|c} X & Y & Z & T.I \\ 1 & 1 & 1 & 37 \\ -1 & -1 & 3 & 3 \\ -1 & 1 & -1 & -13 \end{array}$$

$$X = \frac{\Delta_x}{\Delta_s} = \frac{-120}{-8}$$

$$Y = \frac{\Delta_y}{\Delta_s} = \frac{-96}{-8}$$

$$Z = \frac{\Delta_z}{\Delta_s} = \frac{-80}{-8}$$

Determinante del sistema

X Y Z

$$\begin{vmatrix} 1 & 1 & 1 \\ -1 & -1 & 3 \\ -1 & 1 & -1 \end{vmatrix}$$

← Regla Sarrus

- Principales

- Secundarios

$$X = 15$$

$$Y = 10$$

$$Z = 12$$

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

$$(-3) - (3)$$

$$\Delta_s = -8$$

$$\Delta_x = T.I \ Y \ Z$$

$$\begin{vmatrix} 37 & 1 & 1 \\ 3 & -1 & 3 \\ -13 & 1 & -1 \end{vmatrix}$$

$$\Delta_x = (37 \cdot 3 \cdot 3) - (1 \cdot 1 \cdot 1)$$

$$(1) - (121)$$

$$\Delta_x = -120$$

$$\Delta_y = X \ T.I \ Z$$

$$\begin{vmatrix} 1 & 37 & 1 \\ -1 & 3 & 3 \\ -1 & -13 & -1 \end{vmatrix}$$

$$\Delta_z = X \ Y \ T.I$$

$$\begin{vmatrix} 1 & 1 & 37 \\ -1 & -1 & 3 \\ -1 & 1 & -13 \end{vmatrix}$$

$$\Delta_z = (1 \cdot 3 \cdot 37) - (37 \cdot 3 \cdot 1)$$

$$(-27) - (53)$$

$$\Delta_z = -80$$

$$\Delta_s = -8 \quad \Delta_x = -120 \quad \Delta_y = -96$$

$$\Delta_y = (-3 \cdot 111 + 113) - (-3 \cdot 39 + 37)$$

$$(-101) - (-5)$$

$$\Delta_y = -96$$

Norma

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Metodo Gauss

$$\begin{bmatrix} 1 & 1 & 1 & 37 \\ -1 & -1 & 3 & 3 \\ -1 & 1 & -1 & -13 \end{bmatrix} \quad \begin{array}{l} F_2 - (-1) \times F_1 \rightarrow F_2 \\ \boxed{-1 - (-1) \times 1} \quad \boxed{-1 - (-1) \times 1} \quad \boxed{3 - (-1) \times 1} \quad \boxed{3 - (-1) \times 37} \\ \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\ 0 \quad 0 \quad 4 \quad 40 \end{array}$$

$$\begin{array}{l} F_3 - (-1) \times F_1 \rightarrow F_3 \\ \boxed{-1 - (-1) \times 1} \quad \boxed{1 - (-1) \times 1} \quad \boxed{-1 - (-1) \times 1} \quad \boxed{-13 - (-1) \times 37} \\ \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\ 0 \quad 2 \quad 0 \quad 24 \end{array} \quad \begin{bmatrix} 1 & 1 & 1 & 37 \\ 0 & 0 & 4 & 40 \\ -1 & 1 & -1 & -13 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & 1 & 37 \\ 0 & 0 & 4 & 40 \\ 0 & 2 & 0 & 24 \end{bmatrix} \quad F_3 \leftrightarrow F_2 \quad \begin{bmatrix} 1 & 1 & 1 & 37 \\ 0 & 2 & 0 & 24 \\ 0 & 0 & 4 & 40 \end{bmatrix} \quad \times \left(\frac{1}{2}\right)$$

$$F_2 / (2) \rightarrow F_2 \quad \boxed{0/2} \quad \boxed{2/2} \quad \boxed{0/2} \quad \boxed{24/2} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \begin{bmatrix} 1 & 1 & 1 & 37 \\ 0 & 1 & 0 & 12 \\ 0 & 0 & 4 & 40 \end{bmatrix}$$

$$F_3 / (4) \rightarrow F_3 \quad \boxed{0/4} \quad \boxed{0/4} \quad \boxed{4/4} \quad \boxed{40/4} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \begin{bmatrix} 1 & 1 & 1 & 37 \\ 0 & 1 & 0 & 12 \\ 0 & 0 & 1 & 10 \end{bmatrix}$$

$$F_1 - 1 \times F_3 \rightarrow F_1 \quad \boxed{1 - 1 \times 0} \quad \boxed{1 - 1 \times 0} \quad \boxed{1 - 1 \times 1} \quad \boxed{37 - 1 \times 10} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \begin{bmatrix} 1 & 1 & 0 & 27 \\ 0 & 1 & 0 & 12 \\ 0 & 0 & 1 & 10 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & 0 & 15 \\ 0 & 1 & 0 & 12 \\ 0 & 0 & 1 & 10 \end{bmatrix} \quad F_1 - 1 \times F_2 \rightarrow F_1 \quad \boxed{1 - 1 \times 0} \quad \boxed{1 - 1 \times 1} \quad \boxed{0 - 1 \times 0} \quad \boxed{27 - 1 \times 12} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \begin{bmatrix} 1 & 0 & 0 & 15 \\ 0 & 1 & 0 & 12 \\ 0 & 0 & 1 & 10 \end{bmatrix}$$