

Tarea 8

1. $\begin{cases} x + 2y = 8 \\ -x - 2y = 8 \end{cases} \quad 0 = 16 \quad \text{No tiene solución}$

$\begin{cases} x + 3y = 9 \\ -x - 3y = -9 \end{cases} \quad 0 = 0 \quad \text{soluciones infinitas}$

$$y = -\frac{x}{3} + 3$$

2. Sistema A Sistema B Sistema C

$$\begin{cases} -4x + 3y = 4 \quad (A1) \\ 5x - 6y = -14 \quad (A2) \end{cases} \quad \begin{cases} -4x + 3y = 4 \quad (B1) \\ -3x = -6 \quad (B2) \end{cases} \quad \begin{cases} -4x + 3y = 4 \quad (C1) \\ x = 2 \quad (C2) \end{cases}$$

$$A \rightarrow B = 2 \times A1 + A2 \rightarrow B2$$

$$B \rightarrow C = -\frac{1}{3} \times B2 \rightarrow C2$$

3. $\begin{cases} (3x - \frac{1}{5}y = \frac{3}{5}) \cdot 5 = (15x - y = 3) \cdot 2 \\ (\frac{1}{2}x - \frac{1}{3}y = -17) \cdot 6 = (-30x + 2y = -102) \end{cases}$

$$\begin{aligned} 3x - y &= 6 \\ -30x + 2y &= -102 \\ -27x &= -108 \end{aligned} \quad \begin{aligned} y &= 57 \\ x &= 4 \end{aligned}$$

4. $\begin{cases} (\frac{1}{6}x - \frac{1}{3}y = -6) \cdot 6 = (x - 2y = -36) \cdot 6 \\ (\frac{1}{4}x + \frac{3}{5}y = 2) \cdot 20 = (5x + 12y = 40) \end{cases}$

$$\begin{aligned} x - 2y &= -36 \\ 5x + 12y &= 40 \\ 6x - 12y &= -276 \\ 11x &= -176 \end{aligned} \quad \begin{aligned} y &= 10 \\ x &= -16 \end{aligned}$$

5. $\begin{cases} x - 3y = -6 \\ -x + 3y = 6 \end{cases} \quad 0 = 0 \quad \text{soluciones} \quad y = \frac{x}{3} + 2$

$\begin{cases} x - 4y = 1 \\ -x + 4y = 4 \end{cases} \quad 0 = 8 \quad \text{No tiene soluciones}$

$$\begin{aligned} 6. \quad & -x + 2y - 3z = 1 \\ & x - y - z = 2 \\ & -3x + 4y - z = -3 \end{aligned}$$

$$\begin{aligned} (1) \quad & -x + 2y - 3z = 1 \\ (2) \quad & x - y - z = 2 \\ & y - 4z = 3 \quad (4) \end{aligned}$$

$$\begin{aligned} ((2))3 \quad & 3x - 3y - 3z = 6 \\ (3) \quad & -3x + 4y - z = -3 \\ & y - 4z = 3 \quad (5) \end{aligned}$$

$$\begin{aligned} ((4)) -1 \quad & -y + 4z = -3 \quad 0=0 \\ (5) \quad & y - 4z = 3 \quad 0=0 \end{aligned}$$

∞ soluciones

$$y = +4z + 3 \quad x - 4z - 3 - z = 2 \quad x = +5z + 5$$

$$(5z + 5, 4z + 3, z)$$

$$\begin{aligned} 7. \quad & 3x - 4y = -2 \\ & ax + 3y = 6 \end{aligned}$$

$$y = \frac{-3x - 2}{-4} = \frac{3x + 1}{2} - \frac{9}{2}$$

fallo

$$y = -\frac{ax}{3} + \frac{b}{3} = -\frac{a}{3}x + \frac{b}{3}$$

$$\begin{aligned} ax - 5y &= 6 \\ -4x + 2y &= 3 \end{aligned}$$

$$y = -\frac{ax}{-5} + \frac{b}{-5} = \frac{a}{5}x - \frac{b}{5} \quad a = 10$$

inconsistente

$$y = \frac{4x}{2} + \frac{3}{2} = 2x + \frac{3}{2} \quad b = 1$$

$$\begin{aligned} 8. \quad & 2x - 3y + z = 4 \\ & -x + 5y - z = -1 \\ & 5x - 4y + 2z = 11 \end{aligned}$$

$$\begin{aligned} (1) \quad & 2x - 3y + z = 4 \\ (2) \quad & -x + 5y - z = -1 \\ & x + 2y = 3 \quad (1) \end{aligned}$$

$$\begin{aligned} (2)2 \quad & -2x + 10y - 2z = -2 \\ (3) \quad & 5x - 4y + 2z = 11 \\ & 3x + 6y = 9 \quad (5) \end{aligned}$$

$$\begin{aligned} -3((4)) \quad & -3x - 6y = -9 \quad 0=0 \quad \infty \text{ soluciones} \\ (5) \quad & 3x + 6y = 9 \end{aligned}$$

$$\begin{aligned} x &= -2y + 3 \\ (1) \quad & -4y + 6 - 3y + z = 4 \quad z = 7y - 2 \end{aligned}$$

$$(-2y + 3, y, 7y - 2)$$

Arellano Granados Angel Mariano 29/4/24

9. Sistema A Sistema B Sistema C

$$\begin{cases} 4x - 3y = -15 & (A_1) \\ 5x - 2y = -17 & (A_2) \end{cases} \quad \begin{cases} -8x + 6y = 30 & (B_1) \\ 5x - 2y = -17 & (B_2) \end{cases} \quad \begin{cases} 7x = -21 & (C_1) \\ 5x - 2y = -17 & (C_2) \end{cases}$$

$$A \rightarrow B = -2 \times A_1 \rightarrow B_1$$

$$B \rightarrow C = 3 \times B_2 \rightarrow C_1$$

10. En un salón hay sillas y mesas. Alquilar 5 sillas y 2 mesas cuesta \$27. Alquilar 3 sillas y 8 mesas cuesta \$74.

$$\begin{aligned} (5x + 2y = 27) \cdot 4 & \rightarrow 20x + 8y = 108 \\ 3x + 8y & = 74 \\ \hline -17x & = -34 \\ x & = 2 \end{aligned} \quad \begin{aligned} 10x + 2y & = 27 - 10 \\ \hline 2y & = \frac{27 - 10}{2} \end{aligned}$$

$$\text{silla} = 2$$

$$\text{mesa} = 8.5$$

$$\begin{aligned} 11. (3x + 5y = 121) \cdot 2 & \rightarrow 6x + 10y = 242 \\ 6x + 2y & = 136 \\ \hline -8y & = -106 \\ y & = 13.25 \end{aligned} \quad \begin{aligned} -6x - 10y & = -242 \\ 6x + 2y & = 136 \\ \hline -8y & = -106 \\ y & = 13.25 \end{aligned} \quad \begin{aligned} x & = 18.25 \\ y & = 13.25 \end{aligned}$$

$$\begin{aligned} 12. (1.2x - 0.8y = -8.8) \cdot 10 & \rightarrow 12x - 8y = -88 \\ (0.4x + 2.5y = 2.6) \cdot 3 & \rightarrow 1.2x + 7.5y = 7.8 \\ \hline -9.3y & = -166 \\ y & = 2 \end{aligned} \quad \begin{aligned} 12x - 8y & = -88 \\ 1.2x + 7.5y & = 7.8 \\ \hline -9.3y & = -166 \\ y & = 2 \end{aligned} \quad \begin{aligned} x & = -6 \\ y & = 2 \end{aligned}$$