

EJERCICIO M2BE2257:

"achimages.com"

$$\begin{aligned}x &= \text{"Ensayos"} \\y &= \text{"Novelas"} \\z &= \text{"Biografías"}\end{aligned}$$

"Tres de cada 16 libros son ensayos^(x)"

$$(1) \quad x = \frac{3}{16} \overbrace{(x+y+z)}^{\text{total}}$$

"Las biografías^(z) y la tercera parte de los ensayos^(x) exceden en dos a las novelas^(y)"

$$(2) \quad z + \frac{x}{3} = y + 2$$

"Si se quitan la mitad de los ensayos^(x) y la quinta parte de las novelas^(y) quedan 105 libros"

$$(3) \quad \overbrace{(x+y+z)}^{\text{El total}} - \left(\overbrace{\frac{x}{2} + \frac{1}{5}y}^{\text{se quitan}} \right) = \overbrace{105}^{\text{quedan}}$$

$$(1) \quad x = \frac{3}{16} (x+y+z)$$

$$(2) \quad z + \frac{x}{3} = y + 2$$

$$(3) \quad (x+y+z) - \left(\frac{x}{2} + \frac{1}{5}y \right) = 105$$

Arreglamos:

$$\begin{aligned}
 (1) \quad x &= \frac{3}{16}(x+y+z) \\
 (2) \quad z + \frac{x}{3} &= y+2 \\
 (3) \quad (x+y+z) - \left(\frac{x}{2} + \frac{1}{5}y\right) &= 105
 \end{aligned}
 \left\{
 \begin{aligned}
 16x &= 3x + 3y + 3z \\
 3z + x &= 3y + 6 \\
 10x + 10y + 10z - 5x - 2y &= 1050
 \end{aligned}
 \right.$$

$$\left\{
 \begin{aligned}
 13x - 3y - 3z &= 0 \\
 x - 3y + 3z &= 6 \\
 5x + 8y + 10z &= 1050
 \end{aligned}
 \right.$$

$$\left(\begin{array}{ccc|c} 13 & -3 & -3 & 0 \\ 1 & -3 & 3 & 6 \\ 5 & 8 & 10 & 1050 \end{array} \right)$$

$$x = \frac{|A_x|}{|A|} = \frac{\begin{vmatrix} 0 & -3 & -3 \\ 6 & -3 & 3 \\ 1050 & 8 & 10 \end{vmatrix}}{\begin{vmatrix} 13 & -3 & -3 \\ 1 & -3 & 3 \\ 5 & 8 & 10 \end{vmatrix}} = \frac{-18864}{-786} = \boxed{24=x}$$

$$y = \frac{|A_y|}{|A|} = \frac{\begin{vmatrix} 13 & 0 & -3 \\ 1 & 6 & 3 \\ 5 & 1050 & 10 \end{vmatrix}}{-786} = \frac{-48230}{-786} = \boxed{55=y}$$

$$z = \frac{|A_z|}{|A|} = \frac{\begin{vmatrix} 13 & -3 & 0 \\ 1 & -3 & 6 \\ 5 & 8 & 1050 \end{vmatrix}}{-786} = \frac{-38514}{-786} = \boxed{49=z}$$

May 24 ensayos
 55 novelas
 49 biografías