

Calcula la solución de las siguientes ecuaciones.

a)  $8 + x = 3(x - 8) + 2$

b)  $-4x + 3 = -2x + 6(x - 4) - 2$

c)  $3x + 4 + 6(x + 5) = 2(x + 3)$

a)  $8 + x = 3(x - 8) + 2$

$$8 + x = 3x - 24 + 2$$

$$x - 3x = -24 + 2 - 8$$

$$-2x = -30$$

$$x = 15$$

b)  $-4x + 3 = -2x + 6(x - 4) - 2$

$$-4x + 3 = -2x + 6x - 24 - 2$$

$$-4x + 2x - 6x = -24 - 2 - 3$$

$$-8x = -29$$

$$x = \frac{29}{8}$$

c)  $3x + 4 + 6(x + 5) = 2(x + 3)$

$$3x + 4 + 6x + 30 = 2x + 6$$

$$3x + 6x - 2x = 6 - 4 - 30$$

$$7x = -28 \rightarrow x = -4$$

d)  $5x + 2(x + 6) - 7x = 3x + 8$

$$5x + 2x + 12 - 7x = 3x + 8$$

$$5x + 2x - 7x - 3x = 8 - 12$$

$$-3x = -4$$

$$x = \frac{4}{3}$$

e)  $11(x - 2) = -3(x - 7) + 3(5x + 9)$

$$11x - 22 = -3x + 21 + 15x + 27$$

$$11x + 3x - 15x = 21 + 27 + 22$$

$$-x = 70$$

$$x = -70$$

Resuelve las siguientes ecuaciones.

a)  $\frac{x + 6}{2} = x + 5$

b)  $4 = -\frac{x}{(-5)}$

c)  $x - 5 = \frac{4x - 12}{(-4)}$

a)  $\frac{x + 6}{2} = x + 5$

$$x + 6 = 2x + 10$$

$$x - 2x = 10 - 6$$

$$-x = 4$$

$$x = -4$$

b)  $4 = -\frac{x}{(-5)}$

$$-20 = -x$$

$$x = 20$$

c)  $x - 5 = \frac{4x - 12}{(-4)}$

$$-4(x - 5) = 4x - 12$$

$$-4x + 20 = 4x - 12$$

$$-4x - 4x = -12 - 20$$

$$-8x = -32$$

$$x = 4$$

d)  $5x + 2(x + 6) - 7x = 3x + 8$

e)  $11(x - 2) = -3(x - 7) + 3(5x + 9)$

d)  $\frac{4x}{3} - 21 = -24 + \frac{x}{2}$

e)  $\frac{x + 1}{2} - 1 = \frac{x + 3}{4} - \frac{x + 4}{5}$

d)  $\frac{4x}{3} - 21 = -24 + \frac{x}{2}$

$$\text{m.c.m.}(2, 3) = 6$$

$$2 \cdot 4x - 6 \cdot 21 = 6 \cdot (-24) + 3x$$

$$8x - 126 = -144 + 3x$$

$$8x - 3x = -144 + 126$$

$$5x = -18$$

$$x = -\frac{18}{5}$$

e)  $\frac{x + 1}{2} - 1 = \frac{x + 3}{4} - \frac{x + 4}{5}$

$$\text{m.c.m.}(2, 4, 5) = 20$$

$$10(x + 1) - 20 = 5(x + 3) - 4(x + 4)$$

$$10x + 10 - 20 = 5x + 15 - 4x - 16$$

$$10x - 5x + 4x = 15 - 16 - 10 + 20$$

$$9x = 9$$

$$x = 1$$

Halla la solución de las siguientes ecuaciones.

$$a) 5 + \frac{2x + 4}{3} = -\frac{3x + 9}{4} + \frac{5x + 7}{2}$$

$$b) \frac{3x - 1}{15} + \frac{x - 4}{5} = \frac{x + 4}{3} - 2$$

$$a) 5 + \frac{2x + 4}{3} = -\frac{3x + 9}{4} + \frac{5x + 7}{2}$$

$$\text{m.c.m.}(2, 3, 4) = 12$$

$$12 \cdot 5 + 4(2x + 4) = -3(3x + 9) + 6(5x + 7)$$

$$60 + 8x + 16 = -9x - 27 + 30x + 42$$

$$8x + 9x - 30x = -27 + 42 - 60 - 16$$

$$-13x = -61$$

$$x = \frac{61}{13}$$

$$b) \frac{3x - 1}{15} + \frac{x - 4}{5} = \frac{x + 4}{3} - 2$$

$$\text{m.c.m.}(15, 5, 3) = 15$$

$$3x - 1 + 3(x - 4) = 5(x + 4) - 30$$

$$3x - 1 + 3x - 12 = 5x + 20 - 30$$

$$3x + 3x - 5x = 20 - 30 + 1 + 12$$

$$x = 3$$

$$c) \frac{x + 3}{8} + 1 - \frac{x - 3}{10} - \frac{x - 5}{4} = 0$$

$$\text{m.c.m.}(4, 8, 10) = 40$$

$$5(x + 3) + 40 - 4(x - 3) - 10(x - 5) = 0$$

$$5x + 15 + 40 - 4x + 12 - 10x + 50 = 0$$

$$5x - 4x - 10x = -15 - 40 - 12 - 50$$

$$-9x = -117$$

$$x = 13$$

$$d) \frac{5x + 2}{3} - \frac{3x + 19}{2} + \frac{1 - 3x}{2} - 5 + \frac{x + 1}{6} = x$$

$$\text{m.c.m.}(2, 3, 6) = 6$$

$$2(5x + 2) - 3(3x + 19) + 3(1 - 3x) - 30 + (x + 1) = 6x$$

$$10x + 4 - 9x - 57 + 3 - 9x - 30 + x + 1 = 6x$$

$$10x - 9x - 9x + x - 6x = -4 + 57 - 3 + 30 - 1$$

$$-13x = 79$$

$$x = -\frac{79}{13}$$

$$c) \frac{x + 3}{8} + 1 - \frac{x - 3}{10} - \frac{x - 5}{4} = 0$$

$$d) \frac{5x + 2}{3} - \frac{3x + 19}{2} + \frac{1 - 3x}{2} - 5 + \frac{x + 1}{6} = x$$