

ECUACIONES DE PRIMER GRADO

Resuelve las siguientes ecuaciones de primer grado:

$$1) \frac{1}{4} \left(3x + \frac{5}{2} \right) = 2x$$

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

$$3) 4(x + 2) = \frac{1}{3}(10 - 9x)$$

$$4) \frac{1}{2}(2x - 3) - x = \frac{x}{3} - \frac{1}{2}$$

$$5) \frac{1}{3}(6 + 2x) = \frac{1}{4}(3x + 12)$$

$$6) x + 2 \left(1 - \frac{x}{2} \right) = 8 \left(x - \frac{1}{4} \right)$$

$$7) \frac{2}{3}(3x - 1) + 2 = \frac{x}{2}$$

$$8) \frac{2}{3}(1 - x) + x = \frac{3}{5}(x + 2)$$

$$9) \frac{5x - 1}{6} = \frac{1}{3}(4 + x) + 1$$

$$10) \frac{4}{3}(1 - 2x) + \frac{5}{4}(2x - 1) = \frac{7}{12}(x - 2)$$

$$11) \frac{2}{3} \left(\frac{1}{2} - \frac{x + 1}{4} \right) = \frac{5}{6}$$

$$12) 2 \cdot \left(5x - \frac{x - 4}{3} \right) = 4x$$

$$13) \frac{2(x + 1)}{3} - \frac{1 - x}{5} = x + \frac{3}{10}$$

$$14) \frac{3x + 2}{5} - \frac{4x - 3}{7} = 4 + \frac{x - 2}{35}$$

$$15) \frac{2x - 12}{3} = \frac{3x - 16}{5}$$

$$16) \frac{1}{x + 1} = \frac{5}{2x - 4}$$

$$17) \frac{x - 3}{2x - 5} = \frac{3x + 1}{6x + 1}$$

$$18) \frac{3x - 7}{x + 5} = \frac{3x - 8}{x + 1}$$

$$19) \frac{3x + 2}{x + 1} = 2 + \frac{3}{4}$$

$$20) \frac{x + 1}{2x + 3} + \frac{4}{7} = 1$$

Soluciones:

$$1) \frac{1}{4} \left(3x + \frac{5}{2} \right) = 2x$$

$$3x + \frac{5}{2} = 8x \Rightarrow \frac{5}{2} = 5x \Rightarrow \boxed{x = \frac{1}{2}}$$

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

$$6x - 4 = 5 + 3x \Rightarrow 3x = 9 \Rightarrow \boxed{x = 3}$$

$$3) 4(x + 2) = \frac{1}{3}(10 - 9x)$$

$$12x + 24 = 10 - 9x \Rightarrow 21x = -14 \Rightarrow \boxed{x = -\frac{2}{3}}$$

$$4) \frac{1}{2}(2x - 3) - x = \frac{x}{3} - \frac{1}{2}$$

$$\cancel{x} - \frac{3}{2} - \cancel{x} = \frac{x}{3} - \frac{1}{2} \Rightarrow -1 = \frac{x}{3} \Rightarrow \boxed{x = -3}$$

$$5) \frac{1}{3}(6 + 2x) = \frac{1}{4}(3x + 12)$$

$$24 + 8x = 9x + 36 \Rightarrow \boxed{x = -12}$$

$$6) x + 2 \left(1 - \frac{x}{2} \right) = 8 \left(x - \frac{1}{4} \right)$$

$$x + 2 - x = 8x - 2 \Rightarrow 8x = 4 \Rightarrow \boxed{x = \frac{1}{2}}$$

$$7) \frac{2}{3}(3x - 1) + 2 = \frac{x}{2}$$

$$2x - \frac{2}{3} + 2 = \frac{x}{2} \Rightarrow 12x - 4 + 12 = 3x \Rightarrow 9x = -8 \Rightarrow \boxed{x = -\frac{8}{9}}$$

$$8) \frac{2}{3}(1 - x) + x = \frac{3}{5}(x + 2)$$

$$\frac{2}{3} - \frac{2}{3}x + x = \frac{3}{5}x + \frac{6}{5} \Rightarrow 10 - 10x + 15x = 9x + 18 \Rightarrow -4x = 8 \Rightarrow \boxed{x = -2}$$

$$9) \frac{5x - 1}{6} = \frac{1}{3}(4 + x) + 1$$

$$5x - 1 = 8 + 2x + 6 \Rightarrow 3x = 15 \Rightarrow \boxed{x = 5}$$

$$10) \frac{4}{3}(1-2x) + \frac{5}{4}(2x-1) = \frac{7}{12}(x-2)$$

$$16 - 32x + 30x - 15 = 7x - 14 \Rightarrow 9x = 15 \Rightarrow \boxed{x = \frac{5}{3}}$$

$$11) \frac{2}{3}\left(\frac{1}{2} - \frac{x+1}{4}\right) = \frac{5}{6}$$

$$12\left(\frac{1}{2} - \frac{x+1}{4}\right) = 15 \Rightarrow 6 - 3x - 3 = 15 \Rightarrow -12 = 3x \Rightarrow \boxed{x = -4}$$

$$12) 2 \cdot \left(5x - \frac{x-4}{3}\right) = 4x$$

$$5x - \frac{x-4}{3} = 2x \Rightarrow 15x - x + 4 = 6x \Rightarrow 8x = -4 \Rightarrow \boxed{x = -\frac{1}{2}}$$

$$13) \frac{2(x+1)}{3} - \frac{1-x}{5} = x + \frac{3}{10}$$

$$20x + 20 - 6 + 6x = 30x + 9 \Rightarrow 4x = 5 \Rightarrow \boxed{x = \frac{5}{4}}$$

$$14) \frac{3x+2}{5} - \frac{4x-3}{7} = 4 + \frac{x-2}{35}$$

$$21x + 14 - 20x + 15 = 140 + x - 2 \Rightarrow 29 = 138 \Rightarrow \boxed{\text{No tiene solución}}$$

$$15) \frac{2x-12}{3} = \frac{3x-16}{5}$$

$$10x - 60 = 9x - 48 \Rightarrow \boxed{x = 12}$$

$$16) \frac{1}{x+1} = \frac{5}{2x-4}$$

$$2x - 4 = 5x + 5 \Rightarrow 3x = -9 \Rightarrow \boxed{x = -3}$$

$$17) \frac{x-3}{2x-5} = \frac{3x+1}{6x+1}$$

$$6x^2 + x - 18x - 3 = 6x^2 + 2x - 15x - 5 \Rightarrow -4x = -2 \Rightarrow \boxed{x = \frac{1}{2}}$$

$$18) \frac{3x-7}{x+5} = \frac{3x-8}{x+1}$$

$$3x^2 + 3x - 7x - 7 = 3x^2 - 8x + 15x - 40 \Rightarrow 11x = 33 \Rightarrow \boxed{x = 3}$$

$$19) \frac{3x+2}{x+1} = 2 + \frac{3}{4}$$

$$\frac{x+1}{2x+3} = \frac{3}{7} \Rightarrow 7x+7 = 6x+9 \Rightarrow \boxed{x=2}$$

$$20) \frac{x+1}{2x+3} + \frac{4}{7} = 1$$

$$\frac{3x+2}{x+1} = \frac{11}{4} \Rightarrow 12x+8 = 11x+11 \Rightarrow \boxed{x=3}$$

www.yoquieroaprobar.es