

Resuelve las siguientes ecuaciones:

a) $\frac{x}{3} + x = 2\frac{x}{6} - 2(3-x)$

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

c) $\frac{x}{2} - \frac{x}{3} + \frac{x}{6} - x = 2 - x$

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

a) $\frac{x}{3} + x = 2\frac{x}{6} - 2(3-x)$

$$\frac{x}{3} + x = \frac{2x}{6} - 6 + 2x$$

$$\frac{2x}{6} + \frac{6x}{6} = \frac{2x}{6} - \frac{36}{6} + \frac{12x}{6}$$

$$2x + 6x = 2x - 36 + 12x$$

$$36 = 2x + 12x - 2x - 6x$$

$$36 = 6x$$

$$x = \frac{36}{6} = 6$$

c) $\frac{x}{2} - \frac{x}{3} + \frac{x}{6} - x = 2 - x$

$$\frac{3x}{6} - \frac{2x}{6} + \frac{x}{6} - \frac{6x}{6} = \frac{12}{6} - \frac{6x}{6}$$

$$3x - 2x + x - 6x = 12 - 6x$$

$$2x = 12 \Rightarrow x = 6$$

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

$$\frac{6x}{6} - \frac{3x}{6} + \frac{18x}{6} = \frac{9x}{6} + \frac{10+2x}{6} + \frac{6x}{6} + \frac{6}{6}$$

$$6x - 3x + 18x = 9x + 10 + 2x + 6x + 6$$

$$6x - 3x + 18x - 9x - 2x - 6x = 10 + 6$$

$$4x = 16$$

$$x = \frac{16}{4} = 4$$

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

$$\frac{3x}{6} - \frac{2x-6}{6} - \frac{6x}{6} = \frac{-6}{6} - \frac{4x}{6}$$

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

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

$$-x = -12$$

$$x = 12$$