

Ecuaciones 11

$$1a) 5[2x - 4(3x+1)] = -10x + 20$$

$$10x - 60x - 20 = -10x + 20$$

$$-40x = 40$$

$$x = -\frac{40}{40} = -1$$

$$2a) 3 - \frac{5x-1}{10} = \frac{x-1}{5} - \frac{x-3}{2}$$

$$30 - 5x + 1 = 2x - 2 - 5x + 15$$

$$-2x = -18$$

$$x = +\frac{18}{2} = 9$$

$$20a) x^2 - 5x = 0$$

$$x(x-5) = 0$$

$$x = 0$$

$$x - 5 = 0 \rightarrow x = 5$$

$$21a) x^2 - 2x - 8 = 0$$

$$x = \frac{2 \pm \sqrt{4 + 32}}{2}$$

$$x = \frac{2 \pm 6}{2} = \begin{cases} 4 \\ -2 \end{cases}$$

$$22a) 2x^2 + 5x = 5 + 3x - x^2$$

$$3x^2 + 2x - 5 = 0$$

$$x = \frac{-2 \pm \sqrt{4 + 60}}{6}$$

$$x = \frac{-2 \pm 8}{6} = \begin{cases} 1 \\ -\frac{10}{6} = -\frac{5}{3} \end{cases}$$

$$22i) \frac{3(x^2-11)}{5} - \frac{2(x^2-60)}{7} = 36$$

$$\frac{3x^2-33}{5} - \frac{2x^2-120}{7} = 36$$

$$\frac{21x^2-231-10x^2+600}{35} = \frac{1260}{35}$$

$$21x^2 - 10x^2 - 231 + 600 - 1260 = 0$$

$$11x^2 - 891 = 0$$

$$11x^2 = 891$$

$$x^2 = \frac{891}{11} = 81$$

$$x = \sqrt{81} = \pm 9$$

$$\begin{array}{r} 891 \overline{) 11} \\ 11 \overline{) 81} \end{array}$$

Ecuaciones 12

16) $x-13 = 4(3x-4(x-2))$
 $x-13 = 12x-16x+32$
 $5x = 45$
 $x = 9$

17) $3(6x-5(x-3)) = 15-3(x-5)$
 $18x-15x+45 = 15-3x+15$
 $6x = -15 \rightarrow x = \frac{-5}{2}$

25) $\frac{5x}{15} - \frac{9}{5} = -x - \frac{1-x}{3}$
 $\frac{5x-27}{15} = \frac{-15x-5+5x}{15}$
 $9x = 17 \rightarrow x = \frac{17}{9}$

20b) $2x^2 - 6x = 0$
 $x(2x-6) = 0$
 $x = 0$
 $2x-6 = 0$
 $x = \frac{6}{2} = 3$

22c) $(5x-1)^2 = 16$
 $25x^2 - 10x + 1 = 16$
 $25x^2 - 10x - 15 = 0$
 $x = \frac{10 \pm \sqrt{100 + 1500}}{50}$

Otra forma:
 $(5x-1)^2 = 16$
 $(5x-1) = \sqrt{16} = \pm 4$
 $5x-1 = \begin{cases} 4 \\ -4 \end{cases}$
 $5x = \begin{cases} 4+1 = 5 \\ -4+1 = -3 \end{cases}$
 $x = \begin{cases} 5/5 = 1 \\ -3/5 \end{cases}$

20g) $4x^2 - 1 = 0$
 $4x^2 = 1$
 $x^2 = \frac{1}{4}$
 $x = \pm \sqrt{\frac{1}{4}} = \pm \frac{1}{2}$

21b) $x^2 + 2x + 3 = 0$
 $x = \frac{-2 \pm \sqrt{4-12}}{2}$
 $x = \frac{-2 \pm \sqrt{-8}}{2}$
 Sin soluc.

22g) $1064 = \frac{4+6(x-1)}{2} x$

$1064 = \frac{4+6x-6}{2} x$

$1064 = \frac{4x+6x^2-6x}{2}$

$x = \frac{2 \pm \sqrt{51076}}{12}$

$\frac{2128}{2} = \frac{4x+6x^2-6x}{2}$

$-6x^2 + 6x - 4x + 2128 = 0$

$6x^2 - 2x - 2128 = 0$

$x = \frac{2 \pm 226}{12} = \begin{cases} 19 \\ -56/3 \end{cases}$

$x = \frac{2 \pm \sqrt{4+51072}}{12}$

22b) $4x(x+1) = 15$
 $4x^2 + 4x = 15$
 $4x^2 + 4x - 15 = 0$

$x = \frac{-4 \pm \sqrt{16+240}}{8}$
 $x = \frac{-4 \pm 16}{8} = \begin{cases} 3/2 \\ -5/2 \end{cases}$

