

1º B MATEMÁTICAS. SOLUCIONES AL BOLETÍN 3

13) a) $-2 + x = 7$
 $x = 7 + 2$
 $x = 9$

b) $3x = 21$
 $x = \frac{21}{3}$
 $x = 7$

c) $x - 10 = 4$
 $x = 4 + 10$
 $x = 14$

d) $x + 2 = 0$
 $x = -2$

e) $4x = -36$
 $x = \frac{-36}{4}$
 $x = -9$

f) $9x + 8 = 7x + 6$
 $9x + 7x = 6 - 8$
 $2x = -2$
 $x = \frac{-2}{2}$
 $x = -1$

g) $4x + 3 = 3x + 5$
 $4x - 3x = 5 - 3$
 $x = 2$

h) $2x - 34 = -20$
 $2x = -20 + 34$
 $2x = 14$
 $x = \frac{14}{2}$
 $x = 7$

i) $6x + 6 = 4 + 8x$
 $6x - 8x = 4 - 6$
 $-2x = -2$
 $x = \frac{-2}{-2}$
 $x = 1$

j) $9 + 9x = 17 + 5x$
 $9x - 5x = 17 - 9$
 $4x = 8$
 $x = \frac{8}{4}$
 $x = 2$

k) $x + 1 = 2x - 7$
 $x - 2x = -7 - 1$
 $-x = -8$
 $x = \frac{-8}{-1}$
 $x = 8$

l) $7x + 9 = 3 + 9x$
 $7x - 9x = 3 - 9$
 $-2x = -6$
 $x = \frac{-6}{-2}$
 $x = 3$

m) $x - 9 = -11$
 $x = -11 + 9$
 $x = -2$

n) $x - 8 = 2x - 11$
 $x - 2x = -11 + 8$
 $-x = -3$
 $x = \frac{-3}{-1}$
 $x = 3$

o) $30 - 9x = -7x + 21$
 $-9x + 7x = 21 - 30$
 $-2x = -9$
 $x = \frac{9}{2}$

p) $-4x + 3 - 2x - 1 = -x - 7$
 $-4x - 2x + x = -7 + 1 - 3$
 $-5x = -9$
 $x = \frac{-9}{-5}$
 $x = \frac{9}{5}$

$$14) \text{ a) } 6(7-x) = 8(6-x)$$

$$42 - 6x = 48 - 8x$$

$$8x - 6x = 48 - 42$$

$$2x = 6$$

$$x = \frac{6}{2}$$

$$\boxed{x = 3}$$

$$\text{ b) } 4(x-6) = 12 - (x+3)$$

$$4x - 24 = 12 - x - 3$$

$$4x + x = 12 - 3 + 24$$

$$5x = 33$$

$$\boxed{x = \frac{33}{5}}$$

$$\text{ c) } 5x - 2 = 10x - 2 - (x-7)$$

$$5x - 2 = 10x - 2 - x + 7$$

$$5x - 10x + x = -2 + 7 + 2$$

$$-4x = 7$$

$$x = \frac{7}{-4}$$

$$\boxed{x = -\frac{7}{4}}$$

NOTA

$$\frac{-a}{b} = \frac{-a}{b} = \frac{a}{-b}$$

$$\text{ d) } 4 - (x-3) = 5(x-2) + 9$$

$$4 - x + 3 = 5x - 10 + 9$$

$$-x - 5x = -10 + 9 - 4 - 3$$

$$-6x = -8$$

$$x = \frac{-8}{-6}$$

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

$$\text{ e) } 14x + 16 - 3(5 + 4x) = -11$$

$$14x + 16 - 15 - 12x = -11$$

$$14x - 12x = -11 - 15 + 16$$

$$2x = -10$$

$$x = \frac{-10}{2}$$

$$\boxed{x = -5}$$

$$\text{ f) } 4x - 7(2x+5) = 31x - 6(3-2x)$$

$$4x - 14x - 35 = 31x - 18 + 12x$$

$$4x - 14x - 31x - 12x = -18 + 35$$

$$-53x = 17$$

$$\boxed{x = \frac{-17}{53}}$$

$$15) \text{ a) } \frac{x}{2} - 6 = 2x$$

$$\frac{x}{2} - \frac{12}{2} = \frac{4x}{2}$$

$$x - 12 = 4x$$

$$x - 4x = 12$$

$$-3x = 12$$

$$x = \frac{12}{-3}$$

$$\boxed{x = -4}$$

$$\text{ b) } \frac{x}{4} + 2(x-1) = 5$$

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

$$\frac{x}{4} + \frac{8x}{4} - \frac{8}{4} = \frac{20}{4}$$

$$x + 8x - 8 = 20$$

$$x + 8x = 20 + 8$$

$$9x = 28$$

$$\boxed{x = \frac{28}{9}}$$

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

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

$$\frac{x}{3} - \frac{6}{3} = \frac{15x}{3} + \frac{15}{3}$$

$$x - 6 = 15x + 15$$

$$x - 15x = 15 + 6$$

$$-14x = 21$$

$$x = \frac{-21}{14}; \boxed{x = \frac{-3}{2}}$$

$$15) d) \frac{x-2}{3} + 10 = 5x$$

$$\frac{x-2}{3} + \frac{30}{3} = \frac{15x}{3}$$

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

$$-14x = -28$$

$$x = \frac{-28}{-14}$$

$$\boxed{x=2}$$

$$e) 4x - \frac{7x}{3} + 12 = x - 6$$

$$\frac{12x}{3} - \frac{7x}{3} + \frac{36}{3} = \frac{3x}{3} - \frac{18}{3}$$

$$12x - 7x - 3x = -18 - 36$$

$$2x = -54$$

$$x = \frac{-54}{2}$$

$$\boxed{x=-27}$$

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

$$\boxed{\text{mcm}(2,4)=4}$$

$$\frac{16x}{4} - \frac{2}{4} = \frac{x}{4} + \frac{12}{4}$$

$$16x - x = 12 + 2$$

$$15x = 14$$

$$\boxed{x = 14/15}$$

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

$$\frac{2}{4} + \frac{x}{4} = \frac{12x}{4} - \frac{20}{4}$$

$$x - 12x = -20 - 2$$

$$-11x = -22$$

$$x = \frac{-22}{-11}$$

$$\boxed{x=2}$$

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

$$\frac{2x}{2} - \frac{1}{2} = \frac{6x}{2} + \frac{16}{2}$$

$$2x - 6x = 16 + 1$$

$$-4x = 17$$

$$x = \frac{17}{-4}$$

$$\boxed{x = -\frac{17}{4}}$$

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

$$5 - 2x - 3 = \frac{x}{2}$$

$$\frac{10}{2} - \frac{4x}{2} - \frac{6}{2} = \frac{x}{2}$$

$$-4x - x = 6 - 10$$

$$-5x = -4$$

$$x = \frac{-4}{-5}$$

$$\boxed{x = 4/5}$$