

$$1. \quad a) \quad 3(7x-5) + 8x - 6 = (5x+3)$$

$$\frac{6(7x-5)}{2} + \frac{16x-12}{2} = \frac{x}{2} + \frac{2(5x+3)}{2}$$

$$12x - 30 + 16x - 12 = x + 10x + 6$$

$$12x + 16x + 10x - x = -6 + 12 + 30$$

$$37x = 36 \quad \boxed{x = \frac{36}{37}}$$

b)

$$x - 3 - \frac{x-1}{4} = \frac{1}{4}$$

$$\frac{4(x-3)}{4} - \frac{(x-1)}{4} = \frac{1}{4} \Rightarrow 4x - 12 - x + 1 = 1$$

$$3x = 12 \quad \boxed{x = \frac{12}{3} = 4}$$

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

$$\frac{4x}{4} - \frac{2}{4} - \frac{12(x+1)}{4} = 2\left(\frac{4x}{4} + \frac{1}{4}\right)$$

$$4x - 2 - 12(x+1) = 8x + 2$$

$$4x - 2 - 12x - 12 = 8x + 2$$

$$4x - 12x - 8x = 2 + 12 + 2$$

$$-16x = 16 \quad \boxed{x = -1}$$

2. a)

$$2x^2 - 7x + 6 = 0 \quad x = \frac{7 \pm \sqrt{49 - 48}}{4} = \frac{7 \pm \sqrt{1}}{4}$$

$$x = \frac{7 \pm 1}{4} \begin{cases} \nearrow x_1 = \frac{7+1}{4} = \frac{8}{4} = \boxed{2} \\ \searrow x_2 = \frac{7-1}{4} = \frac{6}{4} = \boxed{\frac{3}{2}} \end{cases}$$

$$2. \quad b) \quad 2x^2 + 12x = 0 \Rightarrow x(2x + 12) = 0 \quad \left. \begin{array}{l} \boxed{x=0} \\ 2x+12=0 \end{array} \right\}$$

$$\Rightarrow 2x + 12 = 0 \quad 2x = -12 \quad \boxed{x = -\frac{12}{2} = -6}$$

$$c) \quad x^4 - 5x^2 + 4 = 0 \quad p = x^2$$

$$p^2 - 5p + 4 = 0 \quad p = \frac{5 \pm \sqrt{25 - 16}}{2}$$

$$p = \frac{5 \pm \sqrt{9}}{2} = \frac{5 \pm 3}{2} \quad \left\{ \begin{array}{l} p_1 = \frac{5+3}{2} = 4 \\ p_2 = \frac{5-3}{2} = 1 \end{array} \right.$$

$$\text{luego... } x^2 = 4 \Rightarrow x = \pm\sqrt{4} \quad \left\{ \begin{array}{l} \boxed{x_1 = 2} \\ \boxed{x_2 = -2} \end{array} \right.$$

$$x^2 = 1 \Rightarrow x = \pm\sqrt{1} \quad \left\{ \begin{array}{l} \boxed{x_3 = 1} \\ \boxed{x_3 = -1} \end{array} \right.$$

$$3. \quad a) \quad \begin{array}{l} 3x - 2y = 37 \\ -4x + 5y = -19 \end{array} \quad \text{por sustitución...}$$

$$3x = 37 + 2y \Rightarrow x = \frac{37 + 2y}{3}$$

$$-4 \left( \frac{37 + 2y}{3} \right) + 5y = -19$$

$$-4 \left( \frac{37 + 2y}{3} \right) + \frac{15y}{3} = \frac{-57}{3}$$

$$-4(37 + 2y) + 15y = -57$$

$$-148 - 8y + 15y = -57$$

$$+7y = -57 + 148$$

$$+7y = 91$$

$$\boxed{y = \frac{91}{7} = 13}$$

$$\boxed{x = \frac{37 + 26}{3} = \frac{63}{3} = 21}$$

3) b)  $-2x + y = -2 \Rightarrow \boxed{y = -2 + 2x}$   
 $-4x - 2y = -12 \rightarrow$  si se para en lo mismo que:  
 $-2x - y = -6 \Rightarrow \boxed{-2x + 6 = y}$

igualamos:

$$-2 + 2x = -2x + 6$$

$$4x = 8 \Rightarrow \boxed{x = 2}$$

$$y = -2 + 2 \cdot 2 = -2 + 4 \Rightarrow \boxed{y = 2}$$

c)  $(5x + 3y = -13) \cdot 3 \Rightarrow 15x + 9y = -39$

$(-3x + 5y = 1) \cdot 5 \Rightarrow -15x + 25y = 5$

---


$$34y = -34 \Rightarrow \boxed{y = -1}$$

$$5x = 3 \cdot (-1) = -3 \quad 5x = -10 \quad x = -\frac{10}{5} \Rightarrow \boxed{x = -2}$$

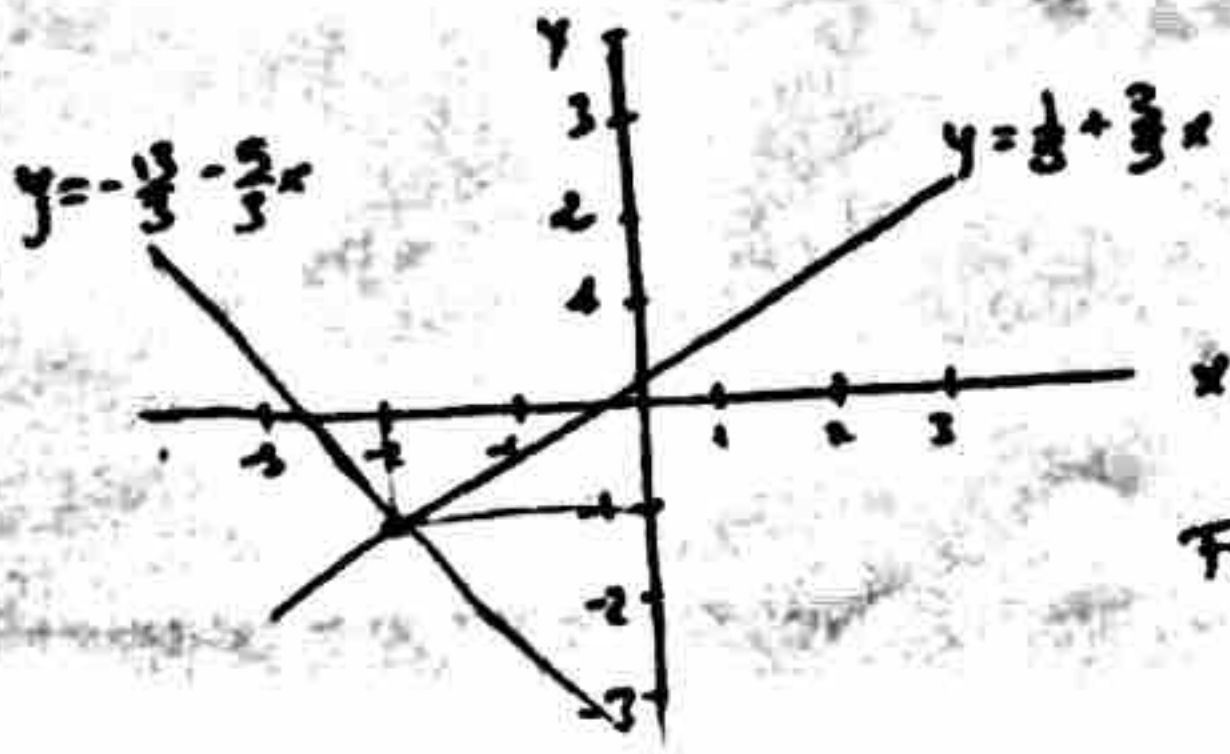
Gráficamente:

$$5x + 3y = -13 \Rightarrow y = -\frac{13}{3} - \frac{5}{3}x$$

$$-3x + 5y = 1 \Rightarrow y = \frac{1}{5} + \frac{3}{5}x$$

x	y
-2	<del>5</del>
-1	<del>5/2</del>
0	<del>13/3</del>
1	<del>18/3</del>
2	<del>23/3</del>

x	y
-2	-1
-1	-2/5
0	1/5
1	4/5
2	7/5



Píense en las pendientes y los cortes...

4.-

cm	10	x
tiempo	8	11

(3 horas más)

$$\frac{10}{8} = \frac{x}{11} \Rightarrow 10 \cdot 11 = 8x \Rightarrow 110 = 8x$$

$$\Rightarrow \frac{110}{8} = x = \frac{55}{4} = \underline{\underline{13,75 \text{ cm}}} \quad \text{no se llena.}$$

5.-

€	5	50	25
horas TV	10	1	2

80€

$$\rightarrow \text{inversa} \quad \frac{1}{10} + \frac{1}{1} + \frac{1}{2}$$

$$\frac{80}{\frac{1}{10} + \frac{1}{1} + \frac{1}{2}} = 50 \Rightarrow \frac{50}{10} = 5 \quad \frac{50}{1} = 50 \quad \frac{50}{2} = 25$$

(Respuesta en arup)

6.-

apuntamentos	días	€
3	7	1260
5	15	

directamente  $\swarrow$   
directamente  $\searrow$

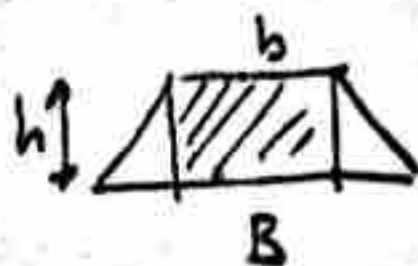
$$\frac{1260}{x} = \frac{7}{15} \cdot \frac{3}{5}$$

$$\frac{1260}{x} = \frac{21}{75} \Rightarrow$$

$$x = \frac{1260 \cdot 75}{21} = \frac{94500}{21} = \underline{\underline{4500}}$$

7.-

$$\frac{b \cdot h}{2}$$



$$Bh + \frac{(B-b) \cdot h}{2} = \frac{2bh + Bh - bh}{2}$$

$$\Rightarrow \frac{(B+b)h}{2}$$

$$L = 2\pi r \quad ; \quad A = \pi r^2$$