

Ej 1

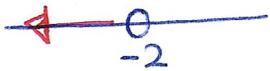
a) $x < 16$

b) $x > 1,20$

c) $125 < x < 145$

Ej 2

a) $5x + 4 < -6 \Rightarrow 5x < -6 - 4 \Rightarrow 5x < -10 \Rightarrow x < \frac{-10}{5} \Rightarrow x < -2$



$x \in (-\infty, -2)$

b) $\frac{5x-1}{8} + 2x \geq x - \frac{x+1}{8} \Rightarrow \frac{5x-1}{8} + \frac{16x}{8} \geq \frac{8x}{8} - \frac{x+1}{8}$

$\Rightarrow 5x - 1 + 16x \geq 8x - x - 1 \Rightarrow 5x + 16x - 8x + x \geq 1 - 1 \Rightarrow 14x \geq 0$

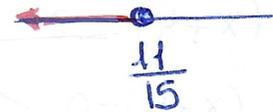
$\Rightarrow x \geq 0$



$x \in [0, \infty)$

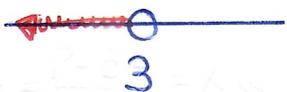
c) $2x - \frac{3x+1}{3} \geq 2(3x-2) \Rightarrow \frac{6x}{3} - \frac{3x+1}{3} \geq \frac{18x}{3} - \frac{12}{3} \Rightarrow 6x - 3x - 1 \geq 18x - 12$

$-1 + 12 \geq 18x - 6x + 3x \Rightarrow 11 \geq 15x \Rightarrow \frac{11}{15} \geq x$



$x \in (-\infty, \frac{11}{15}]$

d) $\frac{3(x+1)}{2} > 2x \Rightarrow \frac{3x+3}{2} > \frac{4x}{2} \Rightarrow 3x+3 > 4x \Rightarrow 3 > 4x-3x \Rightarrow 3 > x$



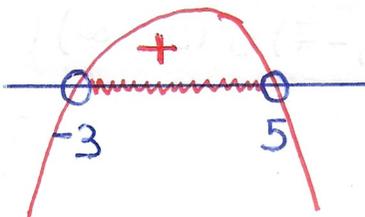
$x \in (-\infty, 3)$

e) $(5-x)(x+3) > 0 \Rightarrow 5x - x^2 + 15 - 3x > 0 \Rightarrow -x^2 + 2x + 15 > 0$

$(5-x)(x+3) = 0$

$5-x=0 \Rightarrow x=5$

$x+3=0 \Rightarrow x=-3$

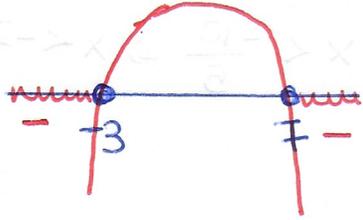


$x \in (-3, 5)$

$$f) 2x + 5 \leq x^2 - 2x - 16 \Rightarrow -x^2 + 2x + 2x + 5 + 16 \leq 0 \Rightarrow -x^2 + 4x + 21 \leq 0$$

$$-x^2 + 4x + 21 = 0$$

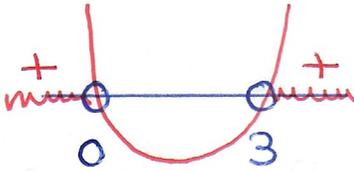
$$x = \frac{-4 \pm \sqrt{4^2 - 4 \cdot (-1) \cdot 21}}{2 \cdot (-1)} = \frac{-4 \pm \sqrt{100}}{-2} = \frac{-4 \pm 10}{-2} \rightarrow \begin{cases} x = \frac{-4-10}{-2} = 7 \\ x = \frac{-4+10}{-2} = -3 \end{cases}$$



$$\text{Sol: } x \in (-\infty, -3] \cup [7, \infty)$$

$$g) x^2 - 3x > 0$$

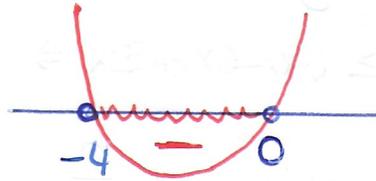
$$x^2 - 3x = 0 \Rightarrow x \cdot (x - 3) = 0 \rightarrow \begin{cases} x = 0 \\ x - 3 = 0 \Rightarrow x = 3 \end{cases}$$



$$\text{Sol: } x \in (-\infty, 0) \cup (3, \infty)$$

$$h) x \cdot (x + 4) \leq 0 \Rightarrow x^2 + 4x \leq 0$$

$$x \cdot (x + 4) = 0 \rightarrow \begin{cases} x = 0 \\ x + 4 = 0 \Rightarrow x = -4 \end{cases}$$

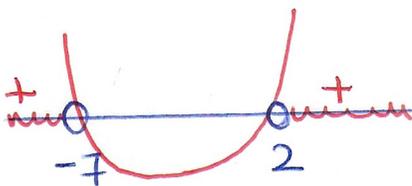


$$\text{Sol: } x \in [-4, 0]$$

$$i) x^2 + 3x - 6 > 8 - 2x \Rightarrow x^2 + 3x + 2x - 6 - 8 > 0 \Rightarrow x^2 + 5x - 14 > 0$$

$$x^2 + 5x - 14 = 0$$

$$x = \frac{-5 \pm \sqrt{5^2 - 4 \cdot 1 \cdot (-14)}}{2 \cdot 1} = \frac{-5 \pm \sqrt{81}}{2} = \frac{-5 \pm 9}{2} \rightarrow \begin{cases} x = \frac{-5-9}{2} = -7 \\ x = \frac{-5+9}{2} = 2 \end{cases}$$



$$\text{Sol: } x \in (-\infty, -7) \cup (2, \infty)$$

Eq 3 | x litros de 5€/l
20 litros de 3,5€/l

$$5x + 20 \cdot 3,5 < 4 \cdot (x + 20)$$

$$5x + 70 < 4x + 80$$

$$5x - 4x < 80 - 70$$

$$x < 10$$

Tienen que utilizarse menos de 10 litros de vino de 5€/l.

Eq 4

Empresa A $25€ + 0,10€/min \cdot x$

Empresa B $20€ + 0,12€/min \cdot x$

$$25 + 0,1x < 20 + 0,12x$$

$$25 - 20 < 0,12x - 0,1x$$

$$5 < 0,1x$$

$$\frac{5}{0,1} < x \Rightarrow 50 < x$$

A partir de 50 minutos de conversación es más rentable la empresa A.

Eq 5

1º oferta $1000€ + 200€ \cdot x$

2º oferta $800€ + 250€ \cdot x$

$$1000 + 200x < 800 + 250x$$

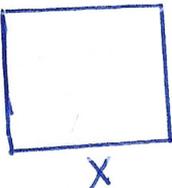
$$1000 - 800 < 250x - 200x$$

$$200 < 50x$$

$$\frac{200}{50} < x \Rightarrow 4 < x$$

Si se venden menos de 4 coches, la 1ª oferta es mejor, si se venden más es mejor la 2ª.

Eq 6



$$4 \cdot x < 60 \Rightarrow x < \frac{60}{4} \Rightarrow x < 15 \text{ m}$$

El lado del cuadrado está entre 0 y los 15 m.