EQUATIONS, INEQUALITIES AND SYSTEMS TEST - 4º ESO

Exercise 1: (1 point) Find the dimensions of a rectangle if its perimeter has a length of 84 m and its area measures $437\ \text{m}^2$

The rectangle has a length of 19 m and a width of 23 m, or the other way round

Exercise 2: (2.5 points) Solve:

a) $\left.\begin{matrix} xy=30 \\ x^2-7y^2=37 \end{matrix}\right\} \rightarrow \begin{matrix} x=10,\ \ y=3 \\ x=-10,\ \ y=-3 \end{matrix}$ (1.5)

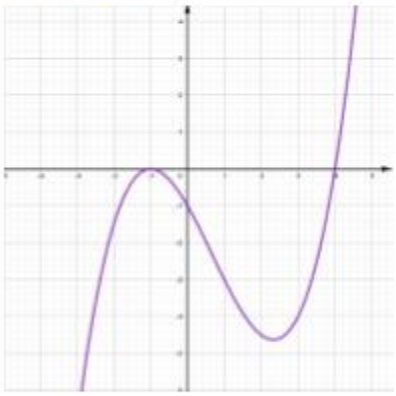
b) $\left.\begin{matrix} x-y=8 \\ x^2+3y^2=148 \end{matrix}\right\} \rightarrow \begin{matrix} x=1,\ \ y=-7 \\ x=11,\ \ y=3 \end{matrix}$ (1)

Exercise 3: (2 points) Solve the following equations:

a) $x+\sqrt{5x-1}=5 \ \rightarrow \ x=2$ (0.75)

b) $\sqrt{4x-4}-\sqrt{x-1}=2 \ \rightarrow \ x=5$ (1.25)

Exercise 4: (0.75 points) Find the points where $f(x)<0$:



$x\in(-\infty,-1)\cup(-1,4)$

Exercise 5: (3.75 points) Solve the following inequalities and systems:

a) $\left.\begin{matrix} x^2-5x<0 \\ 2(x+3)-4(3-x)\le 1+x \end{matrix}\right\} \rightarrow \ x\in\left(0,\frac{7}{5}\right]$ (1.25)

b) $\left.\begin{matrix} 1-x^2\le 0 \\ x^2-4x+4>0 \end{matrix}\right\} \rightarrow \ x\in(-\infty,-1]\cup[1,2)\cup(2,+\infty)$ (1.5)

c) $(x-3)^2-5(1-x)\ge 3x-2 \ \rightarrow \ x\in\mathbb{R}$ (1)