EQUATIONS TEST

3º ESO

Exercise 1: (2.75 ptos) Solve:

a) $\frac{x-2}{2}=\frac{3x-2}{x+2} \rightarrow x=0,\ x=6$ (0.75)

b) $(2x+1)^2-(x-5)^2=45 \rightarrow x=3,\ x=-23/3$ (1)

c) $x^4-8x^2-9=0 \rightarrow x=\pm 3$ (1)

Exercise 2: (1 pto) In an isosceles triangle the altitude is 5 cm longer than the base and the area measures $42\ cm^2$. Find the values of the base and the altitude

The base measures 7 cm and the altitude is 12 cm

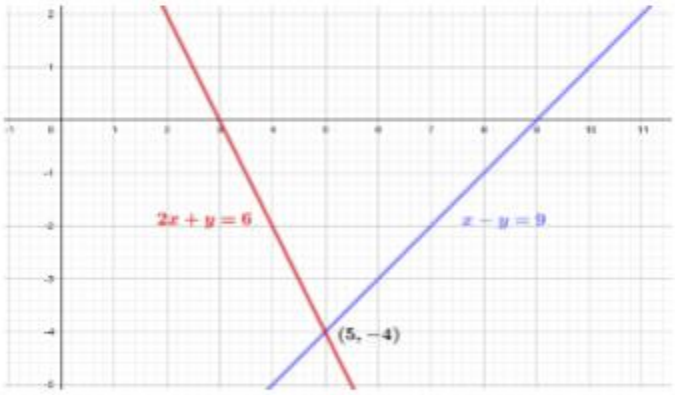
Exercise 3: (3 ptos) Solve the following systems of equations using the indicated method:

a) $\left.\begin{matrix}2x-y=13\\5x+2y=1\end{matrix}\right\}$ Substitution $\quad x=3,\ y=-7$

b) $\left.\begin{matrix}6x-2y=4\\9x-3y=1\end{matrix}\right\}$ Elimination $\quad$ It has no solution

c) $\left.\begin{matrix}3x-4y=5\\5x-6y=7\end{matrix}\right\}$ $\quad x=-1,\ y=-2$

d) $\left.\begin{matrix}x-y=9\\2x+y=6\end{matrix}\right\}$ Graphical



Exercise 4: (2.5 ptos) Divide the following polynomials and **indicate the quotient and the remainder:**

a) $(5x^3+4x^2-3x-2):(x-1)$ Quotient: $5x^2+9x+6$, Remainder: 4 (0.75)

b) $(x^4+2x^3-3x^2-5):(x+2)$ Quotient: x^3-3x-1, Remainder: -17 (0.75)

c) $(x^4-4x^3+3x-1):(x^2-3)$ Quotient: x^2-4x+3, Remainder: $-9x+8$ (1)

Exercise 5: (0.75 ptos) In a hospital we have double and triple rooms. There are a total of one hundred and ten rooms, and two hundred and fifty-five beds. How many rooms of each type do they have?

There are 75 double rooms and 35 triple rooms