EQUATIONS TEST - 3º ESO

Exercise 1: (0.75 points) Divide the polynomials $(x^4+7x^3-2x^2-3x):(x^2-2x)$ and indicate the quotient and the remainder

Exercise 2: (0.75 points) Work out the value of k so that when dividing $P(x)=kx^3+2x^2-5x+1$ by $(x-1)$ the remainder is seventeen

Exercise 3: (3 points) Factor out these polynomials and indicate their roots:

a) $P(x)=x^4+7x^3+17x^2+17x+6$ (1 pto)

b) $P(x)=x^6-5x^5+6x^4+4x^3-8x^2$ (1.25 ptos)

c) $P(x)=x^3-2x^2+9x-18$ (0.75 ptos)

Exercise 4: (0.75 points) I factored out the polynomial $P(x)=7x^4+2x^2+5x+15$ and I got the expression $P(x)=7x^4+2x^2+5x+15=x(x-1)(x+3)^2(x+4)$
Without solving the equation, could you tell me if I made any mistake? Find them all.

Exercise 5: (3.25 points) Solve and classify the following simultaneous equations using the indicated method:

a) $\left.\begin{matrix}x-3y=13\\2x+5y=4\end{matrix}\right\}$ Substitution

b) $\left.\begin{matrix}3x+5y=17\\2x-y=-6\end{matrix}\right\}$ Elimination

c) $\left.\begin{matrix}x+y=2\\2x-y=7\end{matrix}\right\}$ Graphically

d) $\left.\begin{matrix}6x+3y=5\\4x+2y=7\end{matrix}\right\}$ Whatever

Exercise 6: (0.75 points) Solve the equation $(x+7)^2+6x=-2$

Exercise 7: (0.75 points) In my class we are building a plastic dinosaur collection. The red ones have five spikes and the blue ones have seven. So far we have 107 dinosaurs and we have counted a total of 619 spikes. How many dinosaurs of each type do we have?