

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) $\left. \begin{array}{l} x - 3y = 13 \\ 2x + 5y = 4 \end{array} \right\}$ Substitution
b) $\left. \begin{array}{l} 3x + 5y = 17 \\ 2x - y = -6 \end{array} \right\}$ Elimination
c) $\left. \begin{array}{l} x + y = 2 \\ 2x - y = 7 \end{array} \right\}$ Graphically
d) $\left. \begin{array}{l} 6x + 3y = 5 \\ 4x + 2y = 7 \end{array} \right\}$ 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?

