EQUATIONS TEST - 3° ESO

Exercise 1: (1.25 points) Divide the following polynomials and indicate the quotient and the remainder:

a) $(x^4 - 5x^3 + 7x^2 - 8) : (x^2 - x) =$

b) $(x^5 - 7x^3 + 4x^2 - 3) : (x - 2) =$

Exercise 2: (0.5 points) Work out the value of k so that when dividing $P(x) = x^4 - kx^3 + 7x^2 - 8x + 3$ by $(x+2)$ the remainder is ten

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

a) $P(x) = x^3 + 11x^2 + 38x + 40$

b) $P(x) = x^5 - x^4 + 8x^3 - 8x^2 - 9x + 9$

c) $P(x) = x^7 - 4x^6 + 5x^5 - 2x^4$

Exercise 4: (1.75 points) Simplify:

a) $\dfrac{x^4 - 20x^2 + 64}{(x^2 - 8x + 16)(x^2 - 4)}$

b) $\dfrac{x^2yz + xy^2z + xyz^2}{x^3y^3z + x^2y^4z + x^2y^3z^2}$

Exercise 5: (0.75 points) Escribe y desarrolla una ecuación que tenga como raíces x = 0 triple, x = -3 y x = 2 doble

Exercise 6: (0.75 points) I factored out the polynomial $P(x) = 2x^5 + 5x^4 + 3x^2 + 8x + 12$ and I got the expression $x(x-1)(x+3)(x+5)$. Without solving the equation, could you tell me if I made any mistake?

Exercise 7: (0.5 points) Expand:

a) $(3x+5)^2 =$

b) $(2x^5y^7v^4 - x^6v)^2 =$

Exercise 8: (1 point) En un triángulo isósceles la altura mide 6cm más que la base, y los lados iguales 7cm más que la altura. Si el área es 195.5cm^2, halla las dimensiones del triángulo.

Pero, ¿se puede resolver una ecuación de cuarto grado? ¿Y de quinto? (0.5 puntos)