SECOND TERM GLOBAL TEST - 3º ESO

Exercise 1: (1 point) In an arithmetic sequence, $a_5 = 7$ and $a_{10} = -28$. Find the general term and the sum of the first one hundred terms.

Exercise 2: (1 point) In a geometric sequence, $a_1 = 5$ and $a_{12} = 885735$. Find the general term and the sum of the first thirty-nine terms.

Exercise 3: (1 point) Un empleado empieza a trabajar en una empresa con un sueldo base de 1200€/mes y un convenio que estipula que si realiza correctamente sus funciones, cada año recibirá un aumento 25€/mes. Si el empleado cumple con sus obligaciones, ¿cuánto habrá ganado en total al cabo de siete años?

Exercise 4: (3 points) Factor the following polynomials and indicate their roots:

a) $Q(x) = x^4 - 34x^2 + 225$ (0.75 ptos)

b) $R(x) = 5x^6 - 15x^5 + 15x^4 - 5x^3$ (1 pto)

c) $P(x) = x^4 + 10x^3 + 37x^2 + 60x + 36$ (1.25 ptos)

Exercise 5: (2 points) Solve and classify the following systems of equations using the indicated method:

a) $\left.\begin{matrix} 2x + y = -11 \\ 5x - 3y = 11 \end{matrix}\right\}$ Substitution

b) $\left.\begin{matrix} 10x - 2y = 1 \\ 15x - 3y = 4 \end{matrix}\right\}$ Elimination

c) $\left.\begin{matrix} 7x + 4y = 5 \\ 2x - 3y = 4 \end{matrix}\right\}$ It's up to you

Exercise 6: (2 points) Work out:

a) $(x-4)^2 + 9 = 3x - 5$

b) $(x^2 + x + 1)(x + 1) =$

c) $(3x^4 - 7x^3 + 9x + 5) : (x^2 + 2x) =$