

SEQUENCES AND POLYNOMIALS TEST – 3º ESO

Exercise 1: (1.5 ptos) Find the general term of the following sequences:

a) $\{9, 36, 144, 576, 2304 \dots\}$

b) $\left\{\frac{3}{1}, \frac{4}{4}, \frac{5}{9}, \frac{6}{16}, \frac{7}{25} \dots\right\}$

c) $\{-5, -1, 3, 7, 11, 15 \dots\}$

Exercise 2: (1 pto) In an AP we know that $a_{12} = 48$ and $a_{30} = 102$. Find the general term, a_{75} and the sum of the first one hundred terms.

Exercise 3: (0.75 ptos) In a GP we know that $a_1 = 9$ and $a_9 = 2304$. Find the general term and the sum of the first seventy terms.

Exercise 4: (1 pto) I place 2000€ in the bank at the beginning of each year with an interest rate of 2% per year. How much money will I have 10 years later?

Exercise 5: (1 pto) A company has a profit of 1200€ during the first year, 1500€ the second year, 1800€ the third year and so on. What's the profit in the tenth year? How much money will they earn in total?

Exercise 6: (1.25 ptos) Work out:

a) $(3x-5)(3x+5) =$

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

c) $(v+w)^4 =$

Exercise 7: (0.75 ptos) Evaluate the polynomial $P(x) = 5x^3 - 4x^2 - 8x + 9$ when $x = -2$

Exercise 8: (1.5 ptos) Take out common factors and group together if possible:

a) $12x^5 - 15x^4 + 21x^3 - 3x^2 =$

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

Exercise 9: (1.25 ptos) Given the polynomials $P(x) = 4x^3 - 3x^2 - 5x + 7$, $Q(x) = -x^3 + 7x^2 - 5x - 2$ and $R(x) = 3x^2 - x$, work out:

a) $P - Q =$

b) $P \cdot R =$

