



SEQUENCES AND POLYNOMIALS TEST

3º ESO



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

- a) $\{2, 14, 98, 686, 4802 \dots\}$
- b) $\left\{0, \frac{3}{4}, \frac{8}{5}, \frac{15}{6}, \frac{24}{7}, \frac{35}{8} \dots\right\}$
- c) $\{-2, 2, 6, 10, 14, 18 \dots\}$

Exercise 2: (1 pto) In an AP we know that $d = 3$ and $a_{29} = 89$. Find the general term, and the sum of the first 75 terms.

Exercise 3: (1 pto) In a GP we know that $a_3 = 20$ and $a_{12} = 10240$. Find the general term and the sum of the first 30 terms.

Exercise 4: (0.75 ptos) There were a total of 2000 ponds in Doñana's Natural Park, but due to climate change during the past decades they have been decreasing by an average of 1.05% per year. How many ponds are there 80 years later?

Exercise 5: (1.25 ptos) How many terms are there in the sequence $\{7, 11, 15, 19, 23, \dots, 71\}$

Exercise 6: (1.5 ptos) Work out using quadratic multiplication formulas:

- a) $(2x-7)(2x+7) =$
- b) $(3x^5 - 2x^3)^2 =$
- c) $(5x+3y)^2 =$

Exercise 7: (0.75 ptos) Evaluate the polynomial $P(x) = 7x^3 - 5x^2 - 9x + 1$ when $x = -2$

Exercise 8: (1 pto) Take out common factors and group together if possible:

- a) $20x^5 - 15x^4 + 10x^3 - 5x^2 =$
- b) $a^5b^2c^3 + a^3b^6c^4 + a^4b^5c^7 =$

Exercise 9: (1.25 ptos) Given the polynomials $P(x) = 5x^3 - 2x^2 - 6x + 4$, $Q(x) = -x^3 + 8x^2 - 4x - 3$ and $R(x) = x^2 - 2x$, work out:

- a) $P - Q =$
- b) $P \cdot R =$

