



SECOND TERM GLOBAL TEST
3º ESO



Exercise 1: (1 pto) In a geometric progression we know that $a_1 = 5$ and $a_9 = 32805$. Find the general term, a_{15} , and the sum of the first twenty-seven terms.

Exercise 2: (1 pto) In an arithmetic progression we know that $a_3 = 5$ and $a_{17} = -51$. Find the general term, a_{49} , and the sum of the first one hundred and fifteen terms.

Exercise 3: (0.75 ptos) My seagull is training for the Spring Animal Marathon, which covers a distance of fourteen kilometers. If the first day she flew a distance of five kilometers each day she is flying 750 m more than the previous day, how many days will she have to train in total until she is able to do it?

Exercise 4: (2 ptos) Factorize the following polynomials and indicate their roots:

- a) $P(x) = x^6 + 9x^5 + 25x^4 + 27x^3 + 10x^2$
b) $Q(x) = x^5 - x^4 - 13x^3 + 13x^2 + 36x - 36$

Exercise 5: (1.5 ptos) Solve the following equations:

- a) $\frac{4x+2}{3x-3} = \frac{6x+3}{4x-2}$
b) $(2x-3)^2 - (x-1)^2 = 85$

Exercise 6: (2.25 ptos) Solve the following systems of equations using the indicated method:

- a) $\left. \begin{array}{l} 3x - y = 19 \\ 9x + 2y = 7 \end{array} \right\}$ Substitution
b) $\left. \begin{array}{l} 3x + 5y = 1 \\ 7x + 2y = 4 \end{array} \right\}$ Elimination
c) $\left. \begin{array}{l} 3x + y = 1 \\ 2x - y = -11 \end{array} \right\}$ Graphical

Exercise 7: (1.5 ptos) Work out:

- a) $P \cdot Q$ if $P(x) = 5x^2 - 7x + 3$ and $Q(x) = 3x - 7$
b) $(x^4 - 2x^3 - 3x + 5) : (x^2 - 3x) =$

