SECOND TERM GLOBAL TEST
3° ESO

Exercise 1: (1 pto) In a geometric progression we know that $r=2$ and $a_{16}=425984$. Find the general term, and the sum of the first one hundred and thirty-seven terms.

$a_n = 13\cdot 2^{n-1}$ $\quad S_{137} = 2.26\cdot 10^{42}$

Exercise 2: (1 pto) In an arithmetic progression we know that $a_4=11$ and $a_{19}=-49$. Find the general term and the sum of the first two hundred terms.

$a_n = 23-4(n-1)$ $\quad S_{200} = -75000$

Exercise 3: (0.75 points) How many terms are there in the sequence given by $\{11, 22, 44, 88\cdots, 369098752\}$

We have 26 terms in there, that is, $a_{26}=369098752$

Exercise 4: (2 ptos) Solve the following second degree equations:

a) $45x^2+5x=0 \rightarrow x=0,\ x=-1/9$ $\quad$ b) $25x^2-81=0 \rightarrow x=\pm 9/5$

c) $20x^2-3x-2=0 \rightarrow x=2/5,\ x=-1/4$ $\quad$ d) $x^2-26x+169=0 \rightarrow x=13$ double

Exercise 5: (1 pto) Solve the following equation:

$(7x-1)^2=(2x+2)^2 \rightarrow x=3/5,\ x=-1/9$

Exercise 6: (2.5 ptos) Solve the following systems of equations using the indicated method:

a) $\left.\begin{matrix}3x-y=-13\\5x+2y=4\end{matrix}\right\}$ Substitution $\quad x=-2,\ y=7$ (0.75)

b) $\left.\begin{matrix}5x-3y=33\\7x+2y=9\end{matrix}\right\}$ Elimination $\quad x=3,\ y=-6$ (0.75)

c) $\left.\begin{matrix}x+y=-6\\2x-y=0\end{matrix}\right\}$ Graphical $\quad P(-2,-4)$ (1)

Exercise 7: (1.75 ptos) Divide the following polynomials and indicate the quotient and the remainder:

a) $(x^4-7x^3+4x^2-3):(x+1)$ Quotient: $x^3-8x^2+12x-12$ Remainder: 9 (0.75)

b) $(x^4+5x^3-8x^2+2x-3):(x^2-x)$ Quotient: x^2+6x-2 Remainder: -3 (1)