SECOND TERM GLOBAL TEST
3° ESO

Exercise 1: (1 pto) In a geometric progression we know that $r=2$ and $a_{15}=212992$. Find the general term, and the sum of the first thirty-seven terms. $a_n=13\cdot 2^{n-1} \rightarrow S_{37}=1.79\cdot 10^{12}$

Exercise 2: (1 pto) In an arithmetic progression we know that $a_6=3$ and $a_{21}=-57$. Find the general term and the sum of the first two hundred terms. $a_n=23-4(n-1) \rightarrow S_{200}=-75000$

Exercise 3: (0.75 ptos) Find the position of the term 300 in the sequence $\{12,18,24,30,36\cdots\}$

$n=49$

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

a) $21x^2+3x=0 \rightarrow x=0,\ x=-\frac{1}{7}$

b) $100x^2-9=0 \rightarrow x=\pm\frac{3}{10}$

c) $x^2-28x+196=0 \rightarrow x=14$ double

d) $20x^2-3x-2=0 \rightarrow x=-\frac{1}{4},\quad x=\frac{2}{5}$

Exercise 5: (2 ptos) Solve the following equations:

a) $\frac{3x-1}{x+3}=\frac{7}{3x+1} \rightarrow x=2,\quad x=-\frac{11}{9}$

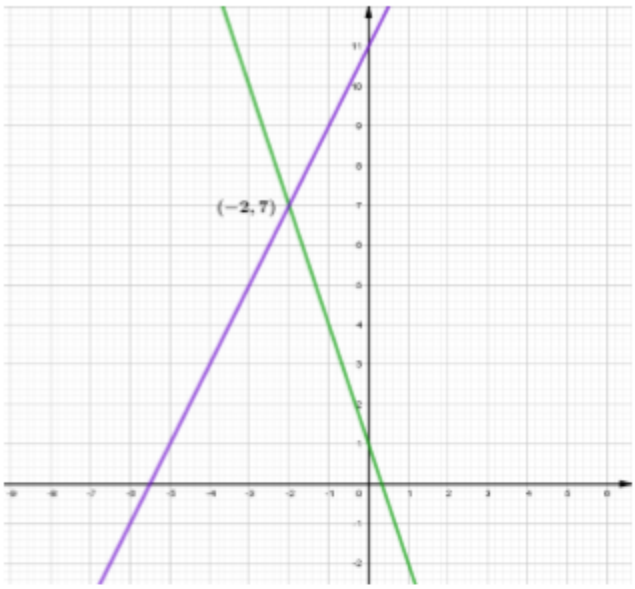
b) $(2x-3)^2=(x+2)^2 \rightarrow x=5,\quad x=\frac{1}{3}$

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

a) $\left.\begin{matrix}3x-y=22\\5x+2y=11\end{matrix}\right\}$ Substitution $\begin{matrix}x=5\\y=-7\end{matrix}$ (0.75)

b) $\left.\begin{matrix}5x-3y=46\\7x+2y=21\end{matrix}\right\}$ Elimination $\begin{matrix}x=5\\y=-7\end{matrix}$ (0.75)

c) $\left.\begin{matrix} 3x+y=1 \\ 2x-y=-11 \end{matrix}\right\}$ Graphical (1)



Exercise 7: (0.75 ptos) If $P(x)=7x^2-6x+5$ and $Q(x)=3x-1$ work out the value of $P\cdot Q$

$P\cdot Q=21x^3-25x^2+21x-5$