POLYNOMIALS AND EQUATIONS TEST
2º ESO

Exercise 1: (1 pto) Take out common factors:

a) $14ab^3+21a^4b-35a^2b^7 = 7ab\left(2b^2+3a^3-5ab^6\right)$

b) $25x^5-20x^4-10x^3+5x^2 = 5x^2\left(5x^3-4x^2-2x+1\right)$

Exercise 2: (1.5 ptos) If $P(x)=3x^2-9x+8$, $Q(x)=4x^2-2x-8$ and $R(x)=2x-3$ work out:

a) $P+Q=7x^2-11x$

b) $P-Q=-x^2-7x+16$

c) $P\cdot R=6x^3-27x^2+43x-24$

Exercise 3: (1 pto) Expand using quadratic multiplication formulas:

a) $(x-7)^2=x^2-14x+49$ b) $(3x-1)(3x+1)=9x^2-1$ c) $(2x-3)^2=4x^2-12x+9$

Exercise 4: (1 pto) Work out:

a) $\frac{x}{3}=2-\frac{3x-1}{4} \rightarrow \boxed{x=\frac{27}{13}}$

b) $\frac{x+3}{3x-2}=\frac{8}{5} \rightarrow \boxed{x=\frac{31}{19}}$

Exercise 5: (2 ptos) Solve these equations without using the formula:

a) $2x^2-50x=0 \rightarrow \begin{cases} x=0 \\ x=25 \end{cases}$ b) $7x^2+9x=0 \rightarrow \begin{cases} x=0 \\ x=-9/7 \end{cases}$

c) $16x^2-49=0 \rightarrow \boxed{x=\pm\frac{7}{4}}$ d) $16x^2-4=0 \rightarrow \boxed{x=\pm\frac{1}{2}}$

Exercise 6: (2 ptos) Work out:

a) $x^2-6x-7=0 \rightarrow \begin{cases} x=7 \\ x=-1 \end{cases}$ b) $x^2-7x+10=0 \rightarrow \begin{cases} x=2 \\ x=5 \end{cases}$

c) $x^2-8x+16=0 \rightarrow x=4$ double d) $6x^2-5x+1=0 \rightarrow \begin{cases} x=1/2 \\ x=1/3 \end{cases}$

Exercise 7: **(1 pto)** Work out $(x+3)^2 - 11 = 5x \rightarrow \begin{cases} x = -2 \\ x = 1 \end{cases}$

Exercise 8: **(0.5 ptos)** Evaluate the polynomial $P(x) = 3x^2 - 5x + 6$ when $x = 2$

$P(2) = 8$