FIRST TERM GLOBAL TEST
4° ESO

Exercise 1: (2.5 ptos) Work out and simplify if possible:

a) $\dfrac{x^4-5x^2+4}{x^3+x^2-4x-4} = x-1$

b) $\dfrac{3}{x-7}-\dfrac{x-5}{x^2-5x-14}+\dfrac{5x}{x+2}=\dfrac{5x^2-33x+11}{x^2-5x-14}$

Exercise 2: (1 pto) Given the polynomial $P(x)=ax^3+bx^2+5x-2$ find the values of a and b so that:

a) It is divisible by $(x-2)$

b) When dividing by $(x+1)$ the remainder is -12

$a=1,\ \ b=-4 \ \rightarrow\ P(x)=x^3-4x^2+5x-2$

Exercise 3: (1 pto) The difference of two numbers is 5, and the sum of their squares is 433. Find the their values The numbers are 17 and 12 or -12 and -17

Exercise 4: (2.5 ptos) Work out:

a) $\left.\begin{array}{l} 3x+4\le 7(x-2)+5x \\ x^2-4x-5<0 \end{array}\right\} \rightarrow\ x\in[2,5)$

b) $\left.\begin{array}{l} 25-x^2<0 \\ x^2-4x+3\le 0 \end{array}\right\} \rightarrow\ \nexists$ solution

Exercise 5: (2.25 ptos) Work out:

a) $\left.\begin{array}{l} x^2-y=-3 \\ x^2+y^2=53 \end{array}\right\} \rightarrow$ $\boxed{x=2 \quad y=7}$ $\boxed{x=-2 \quad y=7}$ (1)

b) $\sqrt{2x+6}+\sqrt{x+2}=3 \ \rightarrow\ \boxed{x=-1}$ (1.25)

Exercise 6: (0.75 ptos) Rationalize and simplify if possible: $\dfrac{\sqrt{10}-\sqrt{8}}{\sqrt{10}+\sqrt{8}} = 9-4\sqrt{5}$