Leith Academy Higher Home Learning

POLYNOMIALS AND QUADRATICS **NON-CALCULATOR**

1) Show that $(x-4)$ is a factor of the function $f(x) = 2x^3 - 3x^2 - 23x + 12$ and hence solve the equation $f(x) = 0$.

2) Express $2x^2 - 24x + 65$ in the form $a(x+b)^2 + c$.

3) Find the value of k for which the equation $x^2 + 5x + k - 3 = 0$ has equal roots.

4) A function is defined as $g(x) = 2x^3 + ax^2 + bx - 72$. If $(x+4)$ is a factor of $g(x)$ and when $g(x)$ is divided by $(x-5)$ the remainder is -117 then calculate the values of a and b.

5) Find the range of values of j such that $2x^2 - 3x + j - 2 = 0$ has no real roots.

6) Solve $3x^2 - 11x - 20 > 0$.