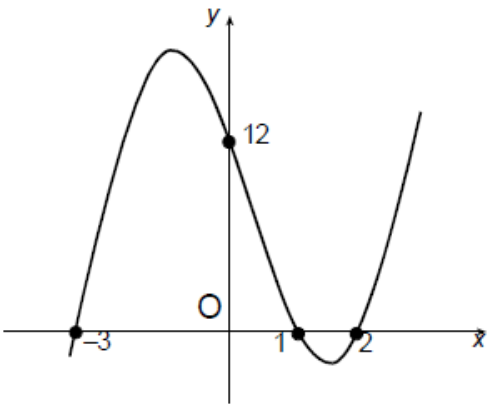
Lockerbie Academy Higher Homework Polynomials

1. If $x - 1$ is a factor of $x^3 - 6x^2 + px - 6$, what is the value of p?

2. a) $f(x) = 2x^3 + x^2 - 5x + 2$. Show that $(2x - 1)$ is a factor of $f(x)$.
   b) Hence factorise $f(x)$ fully.

3. The diagram shows part of the graph of a cubic function.

   What is the equation of this graph?



4. a) $g(x) = 4x^3 + 13x^2 + \boldsymbol{c}x + \boldsymbol{d}$
   Given $(x - 1)$ and $(x + 5)$ are both factors of $g(x)$, find $\boldsymbol{c}$ and $\boldsymbol{d}$.

   b) Hence solve $g(x) = 0$ when $\boldsymbol{c}$ and $\boldsymbol{d}$ take these values.