3 The cubic polynomial $f(x)$ is defined by $f(x) = x^3 + px + q$, where p and q are constants.

(a) (i) Given that $f'(2) = 13$, find the value of p. **[2]**

(ii) Given also that $(x-2)$ is a factor of $f(x)$, find the value of q. **[2]**

The curve $y = f(x)$ is translated by the vector $\begin{pmatrix} 2 \\ -3 \end{pmatrix}$.

(b) Using the values from part **(a)**, determine the equation of the curve after it has been translated. Give your answer in the form $y = x^3 + ax^2 + bx + c$, where a, b and c are integers to be found. **[4]**