4 The polynomial $\mathrm{p}(x) = mx^3 - 29x^2 + 39x + n$, where m and n are constants, has a factor $3x - 1$, and remainder 6 when divided by $x - 1$. Show that $x - 2$ is a factor of $\mathrm{p}(x)$. [6]

5 The function f is defined, for $0° \leqslant x \leqslant 810°$, by $\mathrm{f}(x) = -2 + \cos\frac{2x}{3}$.

(a) Write down the amplitude of f. [1]

(b) Find the period of f. [2]

(c) On the axes, sketch the graph of $y = \mathrm{f}(x)$. [2]

