

6 In this question you must show detailed reasoning.

The cubic polynomial $f(x)$ is defined by $f(x) = 4x^3 + 4x^2 + 7x - 5$.

(a) Show that $(2x - 1)$ is a factor of $f(x)$. **[2]**

(b) Hence solve the equation $4\sin^3 \theta + 4\sin^2 \theta + 7\sin \theta - 5 = 0$ for $0^\circ \leq \theta \leq 360^\circ$. **[7]**