

3 In this question you must show detailed reasoning.

(a) The polynomial $f(x)$ is defined by $f(x) = 2x^3 + 3x^2 - 8x + 3$.

(i) Show that $f(1) = 0$. **[1]**

(ii) Solve the equation $f(x) = 0$. **[4]**

(b) Hence solve the equation $2 \sin^3 \theta + 3 \sin^2 \theta - 8 \sin \theta + 3 = 0$ for $0^\circ \leq \theta < 360^\circ$. **[5]**