2 DO NOT USE A CALCULATOR IN THIS QUESTION.

The polynomial p is such that $\mathrm{p}(x) = 6x^3 - 35x^2 + 34x + 45$.

(a) Find $\mathrm{p}(x)$ in the form $(2x-5)\mathrm{q}(x) + r$, where $\mathrm{q}(x)$ is a polynomial and r is a constant. [3]

(b) Hence write the expression $\mathrm{p}(x) - 5$ as a product of linear factors. [2]

(c) Hence write down the solutions of the equation $\mathrm{p}(x) = 5$. [1]

© UCLES 2024