

13 (a) It is given that

$$P(x) = 4x^3 + 8x^2 + 11x + 4$$

Use the factor theorem to show that $(2x + 1)$ is a factor of $P(x)$

[2 marks]

13 (b) Express $P(x)$ in the form

$$P(x) = (2x + 1)(ax^2 + bx + c)$$

where a , b and c are constants to be found.

[2 marks]

13 (c) Given that n is a positive integer, use your answer to part (b) to explain why $4n^3 + 8n^2 + 11n + 4$ is never prime.

[2 marks]