

**12**  $p(x) = 30x^3 - 7x^2 - 7x + 2$

**12 (a)** Prove that  $(2x + 1)$  is a factor of  $p(x)$

**[2 marks]**

**12 (b)** Factorise  $p(x)$  completely.

**[3 marks]**

**12 (c)** Prove that there are no real solutions to the equation

$$\frac{30 \sec^2 x + 2 \cos x}{7} = \sec x + 1$$

**[5 marks]**