

7 The point A lies on the curve with equation

$$y = x^3 + px^2 + qx + 12$$

7 (a) Given that A has coordinates $(-5, 37)$, show that

$$5p - q = 30$$

[2 marks]

7 (b) Given that A is a stationary point, show that

$$10p - q = 75$$

[3 marks]

7 (c) Hence find the value of p and the value of q

[1 mark]

7 (d) The curve with equation

$$y = x^3 + px^2 + qx + 12$$

has a second stationary point B

Find the coordinates of B

Fully justify your answer.

[3 marks]