

5. The curve C has equation $y = f(x)$ where

$$f(x) = 3x^2 - 12x + 17$$

(a) Express $f(x)$ in the form

$$a(x + b)^2 + c$$

where a , b and c are constants.

(3)

(b) Hence, or otherwise, state the coordinates of the minimum point of C .

(1)

(c) Sketch the graph of C , showing clearly the coordinates of the point where the curve crosses the y -axis.

(2)