

7 It is given that

$$f(x) = 3x^2 + 3x - 8$$

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

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

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

[3 marks]

7 (b) (i) State the minimum value of

$$3\sin^2\theta + 3\sin\theta - 8$$

[1 mark]

7 (b) (ii) Find the smallest positive value of θ for which this minimum value occurs.

[2 marks]