

11 (a) Expand $x(x-2)(x+4)$

[1 mark]

11 (b) Show that

$$\int_{-4}^2 x(x-2)(x+4) \, dx = 36$$

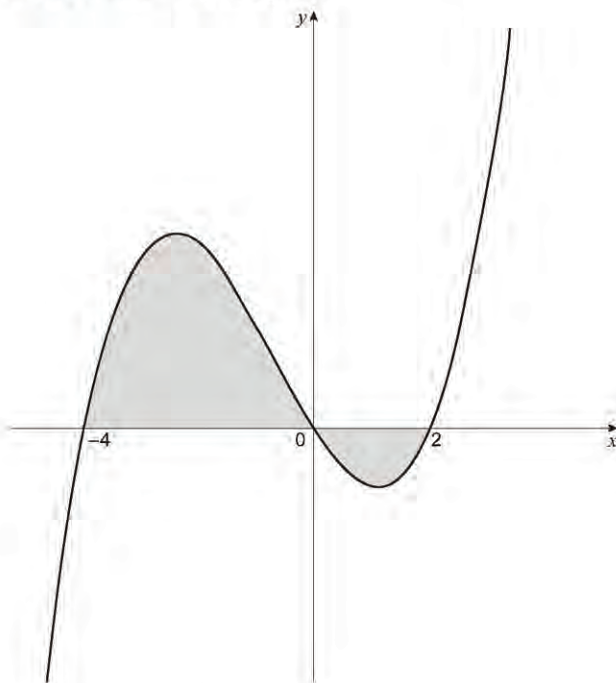
Fully justify your answer.

[4 marks]

11 (c) The curve C has equation

$$y = x(x-2)(x+4)$$

A sketch of C is shown in the diagram.



11 (c) (i) Explain why your answer to part (b) will not give the total area of the shaded region bounded by C and the x -axis.

[1 mark]

11 (c) (ii) Find the total area of the shaded region bounded by C and the x -axis.

[2 marks]