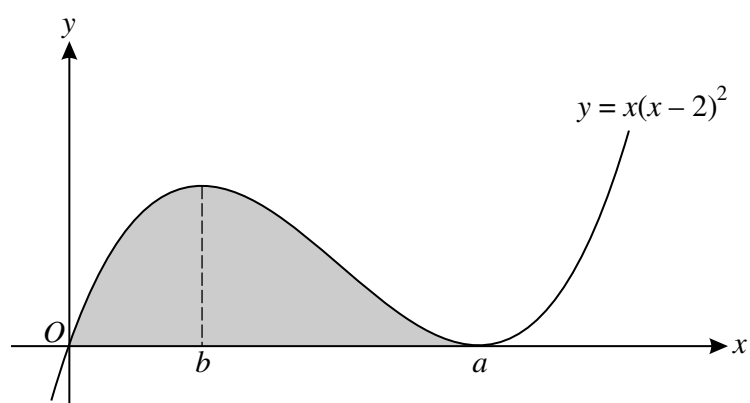


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The diagram shows the curve with equation  $y = x(x - 2)^2$ . The minimum point on the curve has coordinates  $(a, 0)$  and the  $x$ -coordinate of the maximum point is  $b$ , where  $a$  and  $b$  are constants.

- (i) State the value of  $a$ . [1]
- (ii) Find the value of  $b$ . [4]
- (iii) Find the area of the shaded region. [4]
- (iv) The gradient,  $\frac{dy}{dx}$ , of the curve has a minimum value  $m$ . Find the value of  $m$ . [4]