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2. (a) Evaluate  $(32)^{\frac{3}{5}}$ , giving your answer as an integer.

(2)

(b) Simplify fully  $\left(\frac{25x^4}{4}\right)^{\frac{1}{2}}$

(2)

Q2

(Total 4 marks)

























10.

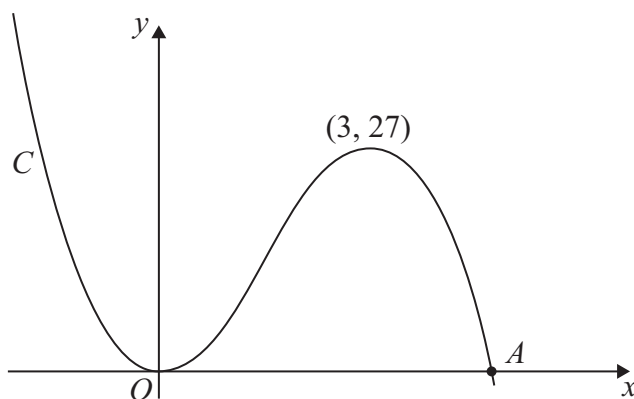


Figure 1

Figure 1 shows a sketch of the curve  $C$  with equation  $y = f(x)$  where

$$f(x) = x^2(9 - 2x)$$

There is a minimum at the origin, a maximum at the point  $(3, 27)$  and  $C$  cuts the  $x$ -axis at the point  $A$ .

(a) Write down the coordinates of the point  $A$ . (1)

(b) On separate diagrams sketch the curve with equation

(i)  $y = f(x + 3)$

(ii)  $y = f(3x)$

On each sketch you should indicate clearly the coordinates of the maximum point and any points where the curves cross or meet the coordinate axes. (6)

The curve with equation  $y = f(x) + k$ , where  $k$  is a constant, has a maximum point at  $(3, 10)$ .

(c) Write down the value of  $k$ . (1)

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