

9

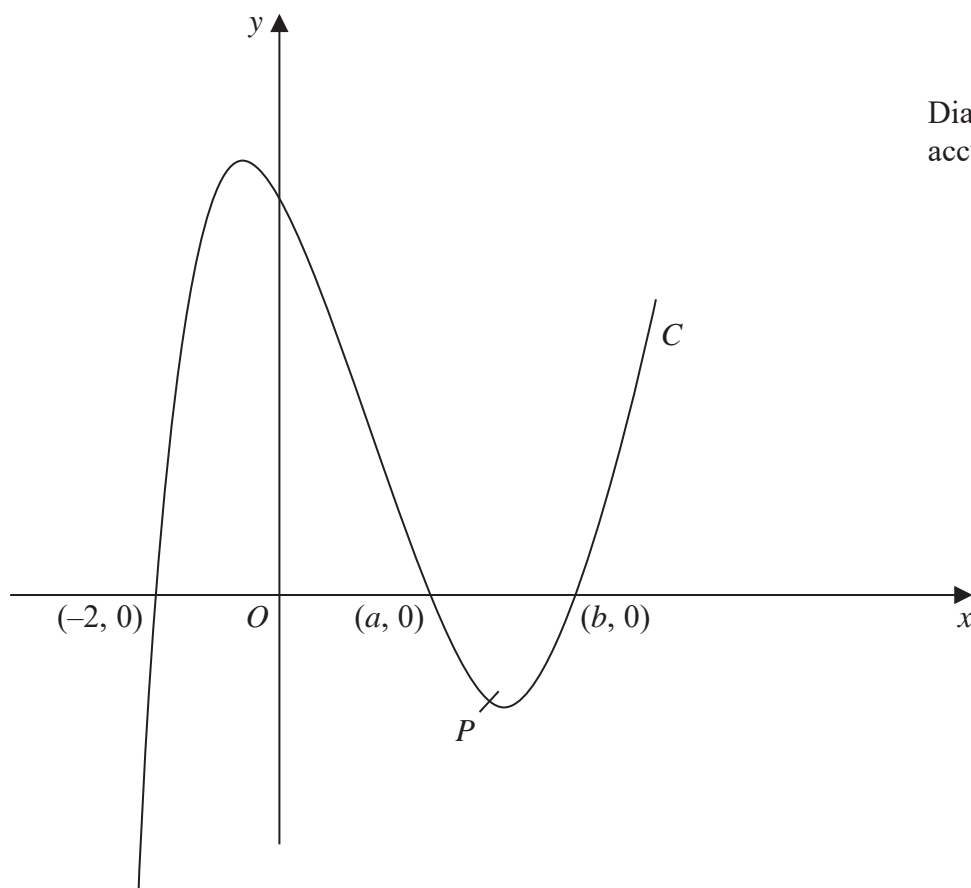
Diagram **NOT**  
accurately drawn**Figure 5**

Figure 5 shows the curve  $C$  with equation  $y = x^3 - 2x^2 - 5x + 6$

The curve  $C$  crosses the  $x$ -axis at the points with coordinates  $(-2, 0)$ ,  $(a, 0)$  and  $(b, 0)$

(a) (i) Show that  $a = 1$

(ii) Find the value of  $b$ .

(4)

The point  $P$  on  $C$  has  $x$  coordinate 2 and the line  $l$  is the tangent to  $C$  at  $P$ .

(b) Show that  $l$  crosses the  $x$ -axis at the point with coordinates  $(-2, 0)$

(6)

(c) Use algebraic integration to find the exact area of the finite region bounded by  $C$  and  $l$ .

(4)

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**Question 9 continued**

Handwriting practice area with horizontal dotted lines.



P 5 3 2 9 2 A 0 2 5 3 6

**Question 9 continued**

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**Question 9 continued****(Total for Question 9 is 14 marks)**

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