

Coordinate Geometry

Question Paper 3

Level	International A Level
Subject	Maths
Exam Board	CIE
Topic	Coordinate Geometry
Sub Topic	
Booklet	Question Paper 3

Time Allowed: **53 minutes**

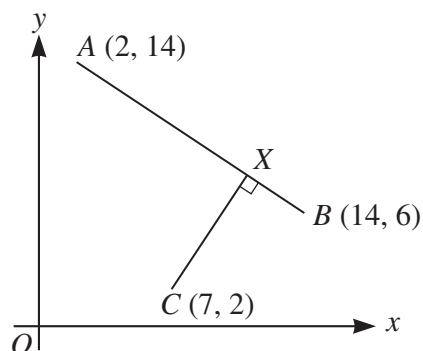
Score: **/44**

Percentage: **/100**

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	'77.5%	70%	62.5%	57.5%	45%	<45%

1

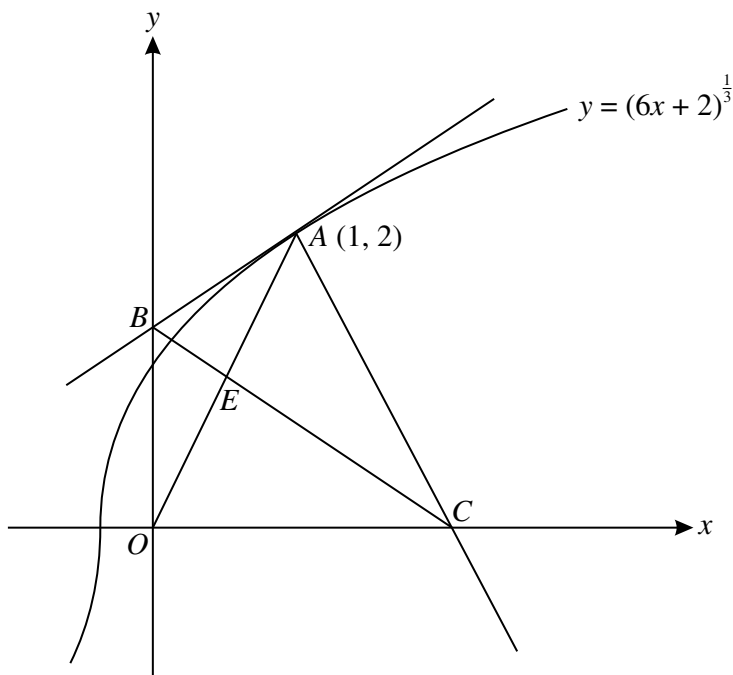


The diagram shows three points $A(2, 14)$, $B(14, 6)$ and $C(7, 2)$. The point X lies on AB , and CX is perpendicular to AB . Find, by calculation,

- (i) the coordinates of X , [6]
- (ii) the ratio $AX : XB$. [2]

2 A curve is such that $\frac{dy}{dx} = -\frac{8}{x^3} - 1$ and the point $(2, 4)$ lies on the curve. Find the equation of the curve. [4]

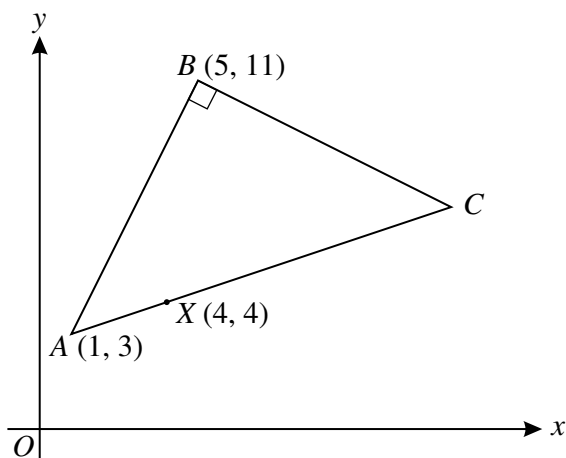
3



The diagram shows the curve $y = (6x + 2)^{\frac{1}{3}}$ and the point $A(1, 2)$ which lies on the curve. The tangent to the curve at A cuts the y -axis at B and the normal to the curve at A cuts the x -axis at C .

- (i) Find the equation of the tangent AB and the equation of the normal AC . [5]
 - (ii) Find the distance BC . [3]
 - (iii) Find the coordinates of the point of intersection, E , of OA and BC , and determine whether E is the mid-point of OA . [4]
- 4 The line $y = \frac{x}{k} + k$, where k is a constant, is a tangent to the curve $4y = x^2$ at the point P . Find
- (i) the value of k , [3]
 - (ii) the coordinates of P . [3]

5



The diagram shows a triangle ABC in which A has coordinates $(1, 3)$, B has coordinates $(5, 11)$ and angle ABC is 90° . The point $X(4, 4)$ lies on AC . Find

(i) the equation of BC , [3]

(ii) the coordinates of C . [3]

6 A curve is defined for $x > 0$ and is such that $\frac{dy}{dx} = x + \frac{4}{x^2}$. The point $P(4, 8)$ lies on the curve.

(i) Find the equation of the curve. [4]

(ii) Show that the gradient of the curve has a minimum value when $x = 2$ and state this minimum value. [4]