

Coordinate Geometry

Question Paper 5

Level	International A Level
Subject	Maths
Exam Board	CIE
Topic	Coordinate Geometry
Sub Topic	
Booklet	Question Paper 5

Time Allowed: 57 minutes

Score: /47

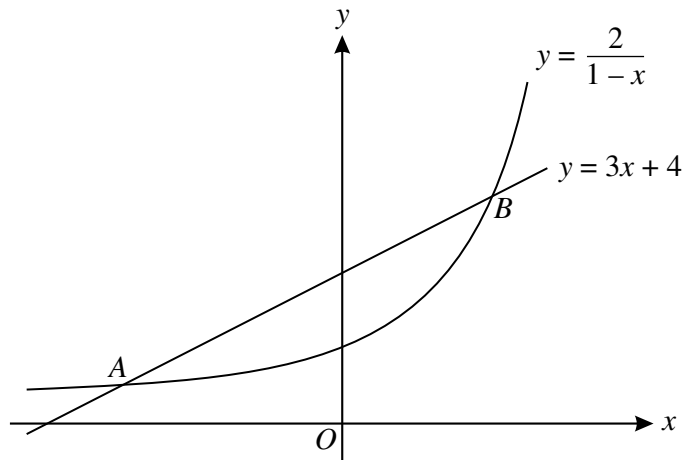
Percentage: /100

Grade Boundaries:

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

- 1 A curve has equation $y = \frac{4}{3x-4}$ and $P(2, 2)$ is a point on the curve.
- (i) Find the equation of the tangent to the curve at P . [4]
 - (ii) Find the angle that this tangent makes with the x -axis. [2]
- 2 The line L_1 passes through the points $A(2, 5)$ and $B(10, 9)$. The line L_2 is parallel to L_1 and passes through the origin. The point C lies on L_2 such that AC is perpendicular to L_2 . Find
- (i) the coordinates of C , [5]
 - (ii) the distance AC . [2]
- 3 The line $\frac{x}{a} + \frac{y}{b} = 1$, where a and b are positive constants, meets the x -axis at P and the y -axis at Q . Given that $PQ = \sqrt{45}$ and that the gradient of the line PQ is $-\frac{1}{2}$, find the values of a and b . [5]
- 4 The equation of a curve is $y = 3 + 4x - x^2$.
- (i) Show that the equation of the normal to the curve at the point $(3, 6)$ is $2y = x + 9$. [4]
 - (ii) Given that the normal meets the coordinate axes at points A and B , find the coordinates of the mid-point of AB . [2]
 - (iii) Find the coordinates of the point at which the normal meets the curve again. [4]

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The diagram shows part of the curve $y = \frac{2}{1-x}$ and the line $y = 3x + 4$. The curve and the line meet at points A and B .

(i) Find the coordinates of A and B . [4]

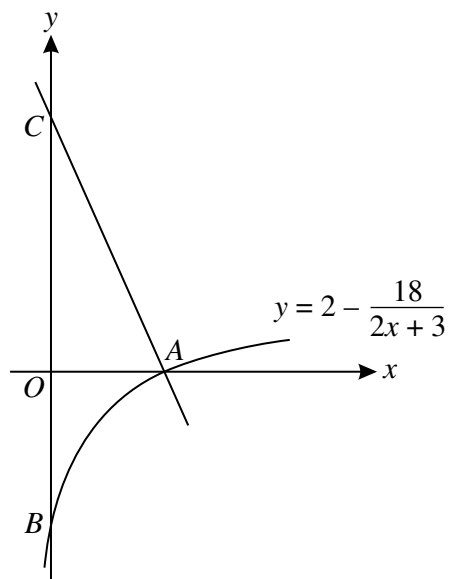
(ii) Find the length of the line AB and the coordinates of the mid-point of AB . [3]

6 Points A , B and C have coordinates $(2, 5)$, $(5, -1)$ and $(8, 6)$ respectively.

(i) Find the coordinates of the mid-point of AB . [1]

(ii) Find the equation of the line through C perpendicular to AB . Give your answer in the form $ax + by + c = 0$. [3]

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The diagram shows part of the curve $y = 2 - \frac{18}{2x + 3}$, which crosses the x -axis at A and the y -axis at B . The normal to the curve at A crosses the y -axis at C .

(i) Show that the equation of the line AC is $9x + 4y = 27$. [6]

(ii) Find the length of BC . [2]