

Non-Calculator Questions

Linear Graphs

Equations of Straight Lines ($y = mx + c$) / Drawing Straight Line Graphs / Parallel Lines / Perpendicular Lines

Easy (4 questions)	/7
Medium (12 questions)	/35
Hard (9 questions)	/34
Total Marks	/76

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Easy Questions

- 1 A straight line, l , has equation $y = 5x + 12$.

Write down the gradient of line l .

(1 mark)

- 2 The line $y = 3x - 2$ crosses the y -axis at G .

Write down the coordinates of G .

(..... ,)

(1 mark)

- 3 (a) Find the co-ordinates of the point where the line $y = 3x - 8$ crosses the y -axis.

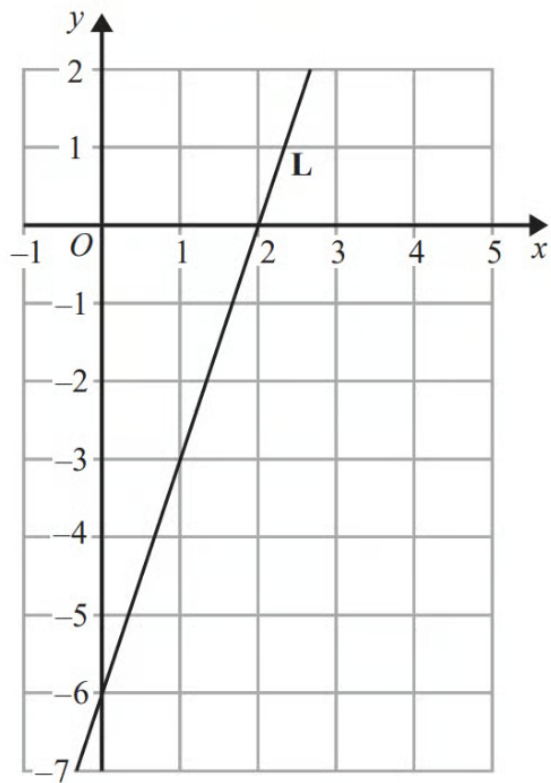
(..... ,)

(1 mark)

- (b) Write down the gradient of the line $y = 3x - 8$.

(1 mark)

4 The line **L** is shown on the grid.



Find an equation for **L**.

(3 marks)

Medium Questions

- 1 Find the gradient of a line that is perpendicular to $8y + 4x = 5$.

(2 marks)

- 2 The equation of line L is $3x - 8y + 20 = 0$.

- i) Find the gradient of line L .

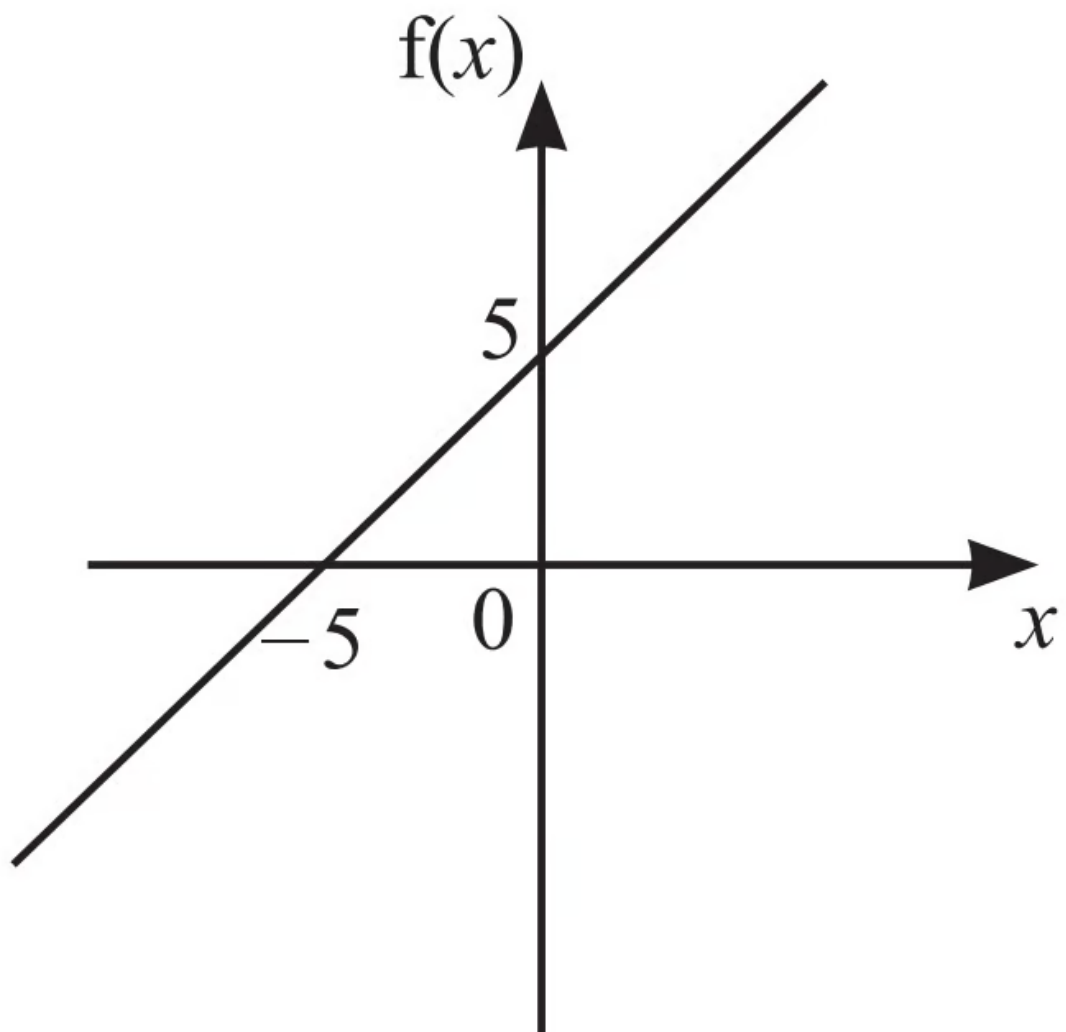
[2]

- ii) Find the coordinates of the point where line L cuts the y -axis.

(..... ,) [1]

(3 marks)

3 Write down the function shown in the graph.

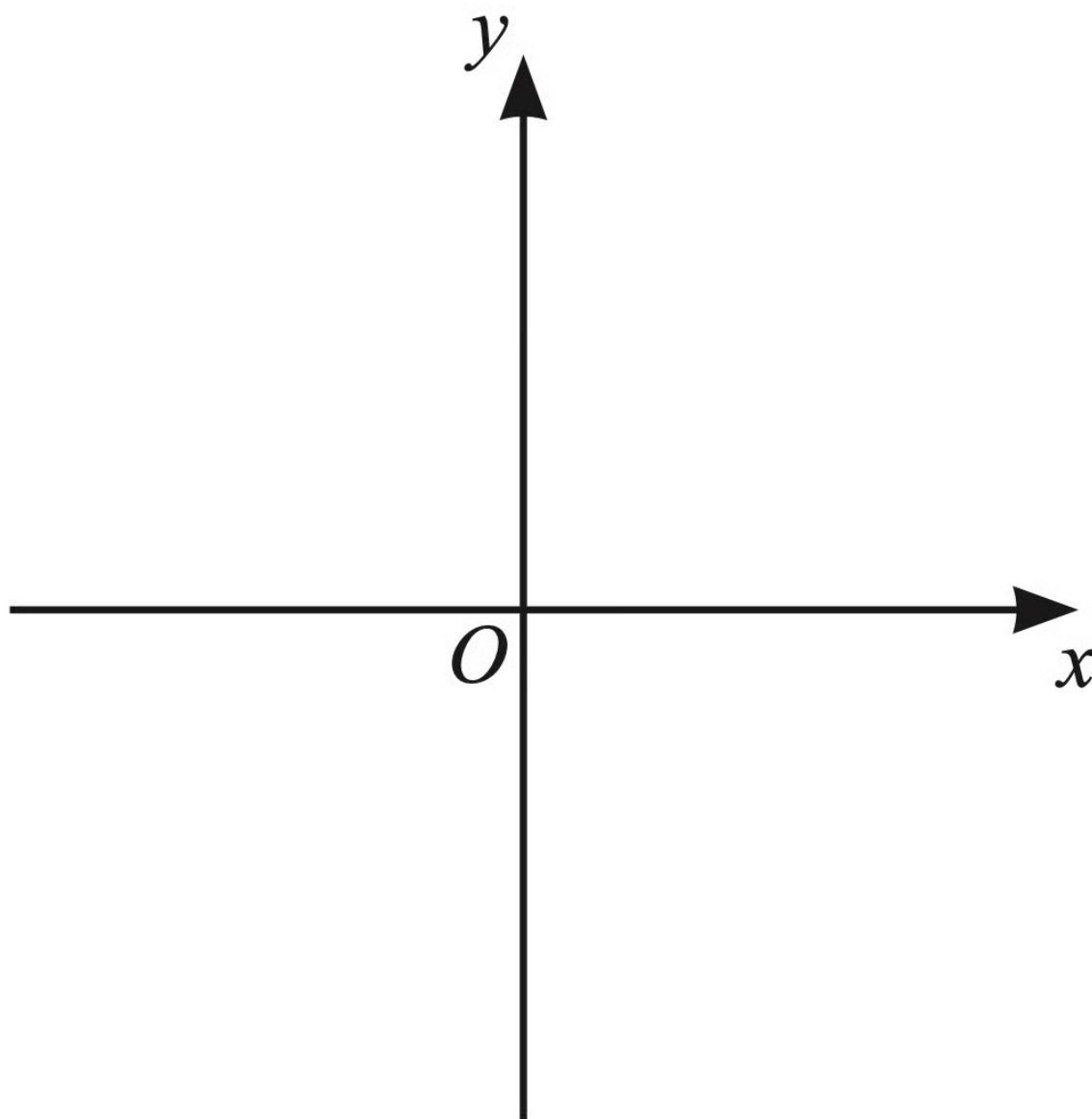


$f(x) = \dots\dots\dots$

(2 marks)

4 Sketch the graph of the function.

$$y = x - 3$$



(1 mark)

- 5 Show that the line $4y = 5x - 10$ is perpendicular to the line $5y + 4x = 35$.

(3 marks)

6 Find the gradient of the line that is perpendicular to the line $2y = 3 + 5x$.

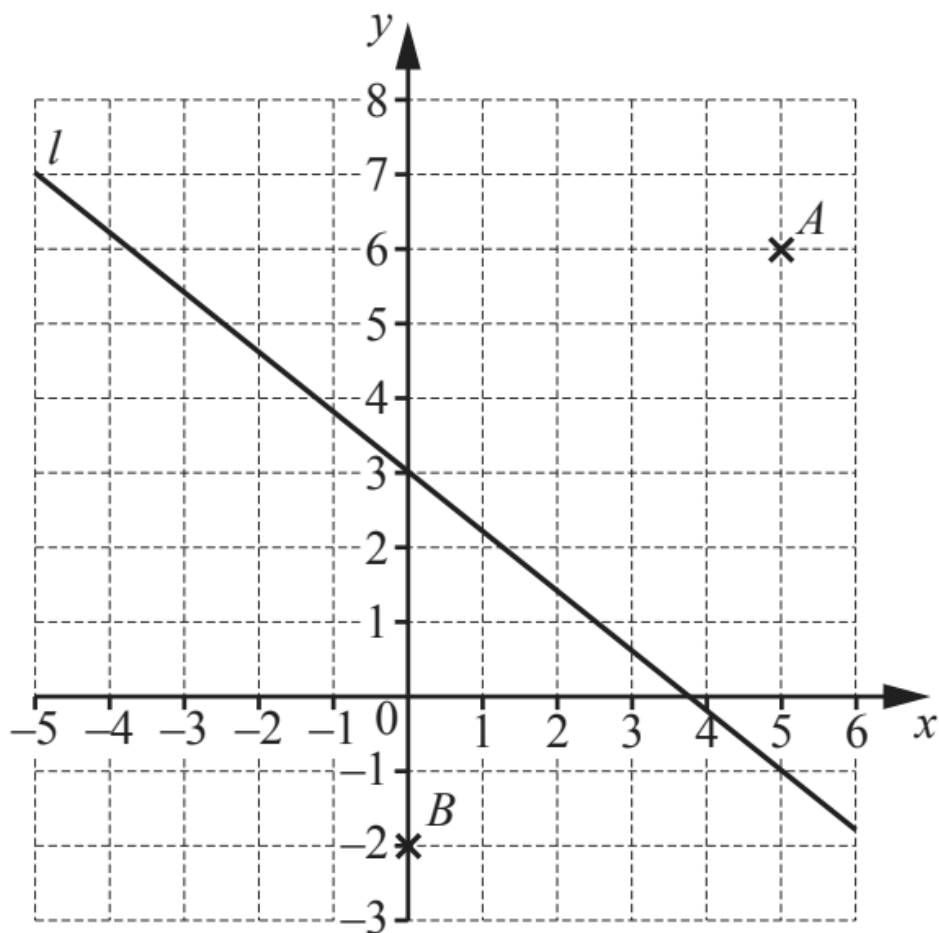
(2 marks)

7 Line L passes through the points $(0, -3)$ and $(6, 9)$.

Find the equation of line L .

(3 marks)

8

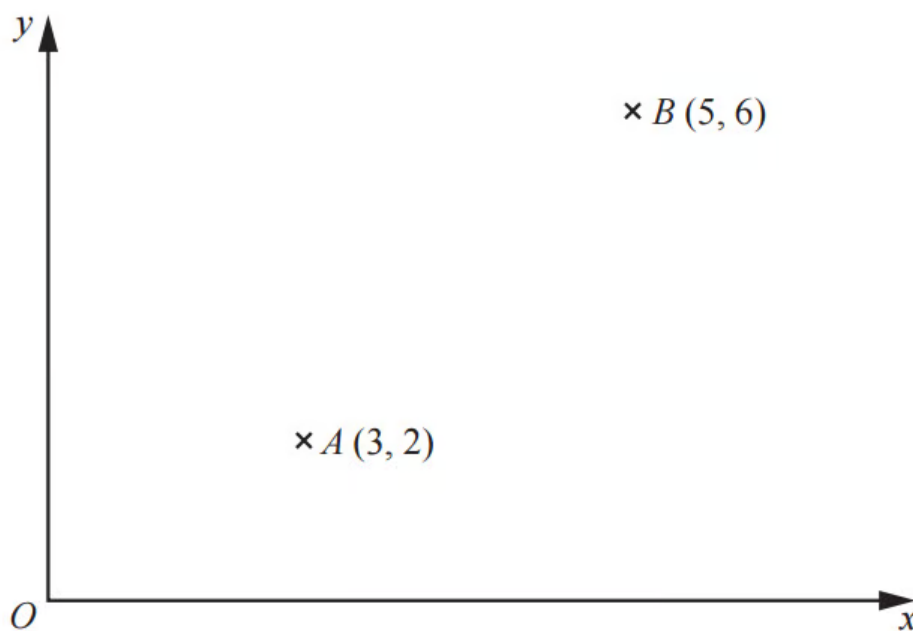


Find the equation of line l in the form $y = mx + c$.

$y = \dots\dots\dots$

(3 marks)

9 (a)



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B is the mid-point of the line AC .

Find the co-ordinates of C .

(..... ,)

(2 marks)

(b) Find the equation of the straight line that passes through A and B .

(3 marks)

(c) The straight line that passes through A and B cuts the y -axis at D .

Write down the co-ordinates of D .

(..... ,)

(1 mark)

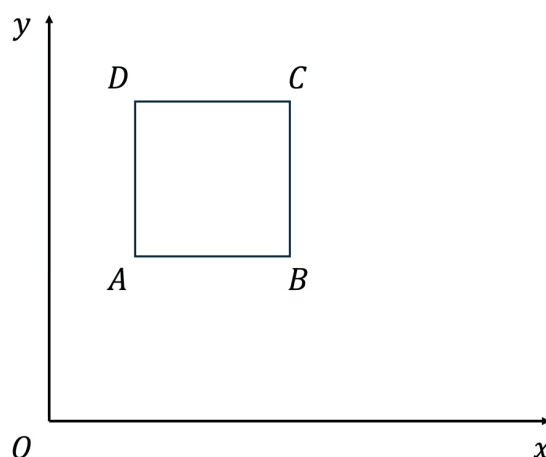
10 The equation of the line L_1 is $y = 4x - 2$

The equation of the line L_2 is $3y - 12x + 12 = 0$

Show that these two lines are parallel.

(2 marks)

11 (a)



$ABCD$ is a square.

The lines $x = 6$ and $y = 10$ are lines of symmetry.

The equation of the line DB is $y = -x + 16$.

Find the equation of the line AC .

(3 marks)

(b) The coordinates of A are $(4,8)$. Write down the coordinates of C .

(1 mark)

12 A straight line passes through the points $(45, 130)$ and $(95, 170)$.

Find the equation of the line in the form $y = mx + c$.

(4 marks)

Hard Questions

- 1 A is the point $(3, 5)$ and B is the point $(1, -7)$.

Find the equation of the line perpendicular to AB that passes through the point A .

Give your answer in the form $y = mx + c$.

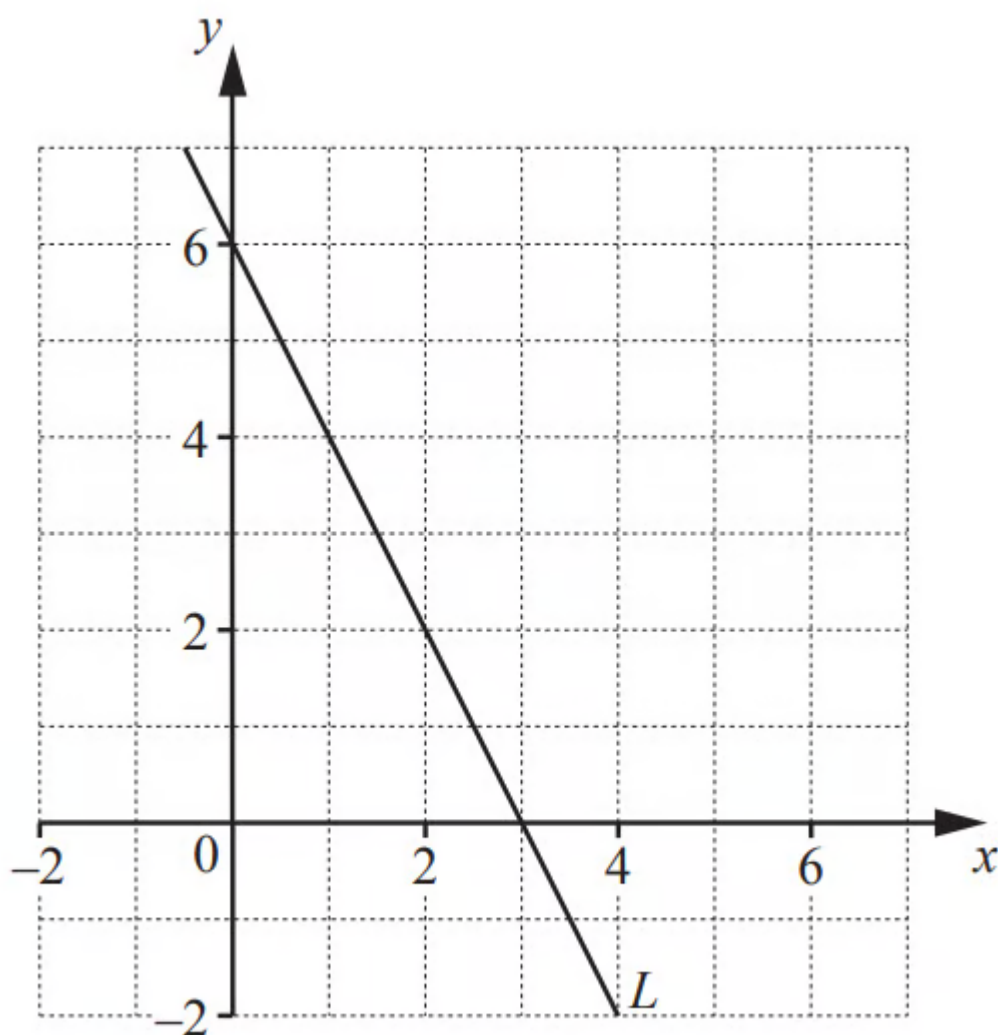
$y =$

(4 marks)

- 2 Find the equation of the line that is perpendicular to the line $y = 2x - 3$ and passes through the point $(0, 2)$.

(2 marks)

3 (a) The diagram shows a straight line L .



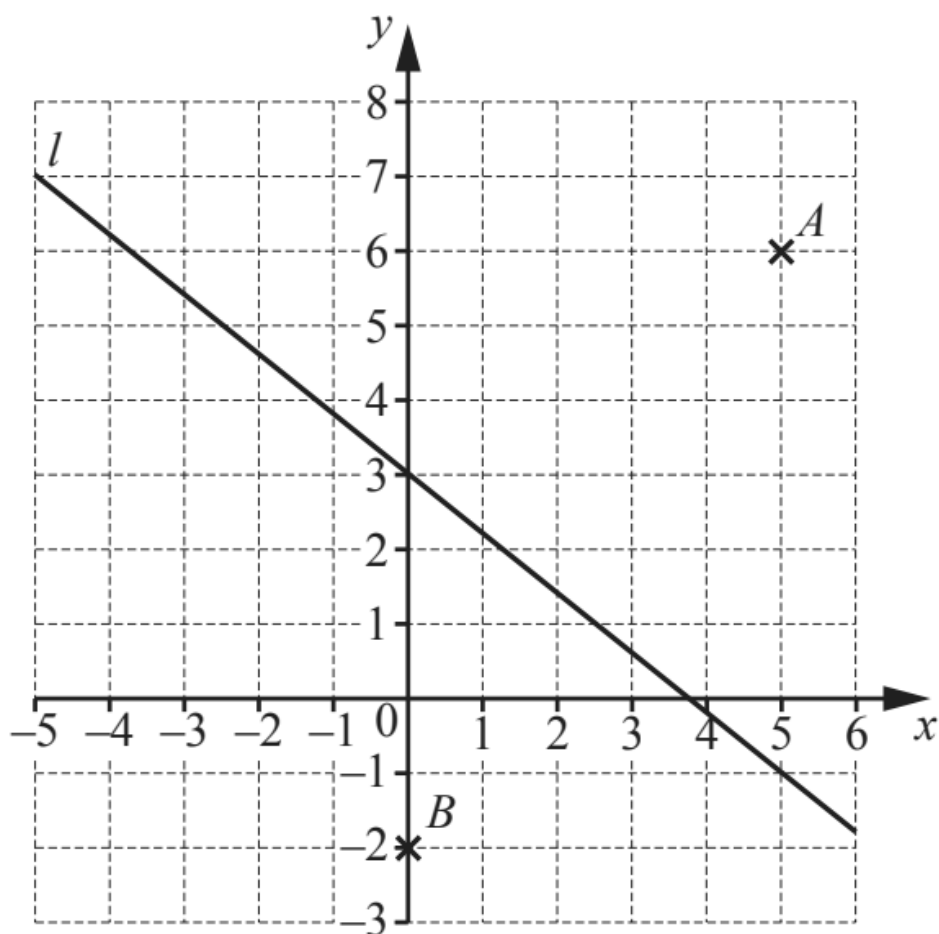
Find the equation of line L .

(3 marks)

(b) Find the equation of the line perpendicular to line L that passes through $(9, 3)$.

(3 marks)

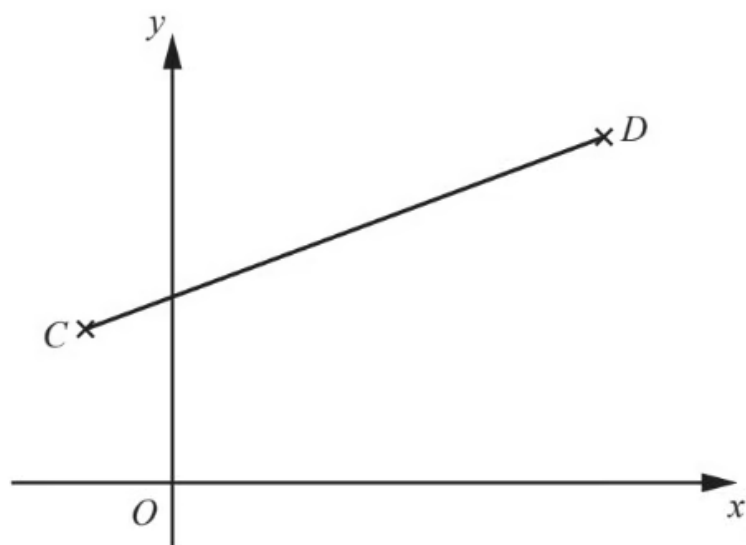
4



Write down the equation of the line parallel to line l that passes through the point B .

(2 marks)

5



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The diagram shows the points $C(-1, 2)$ and $D(9, 7)$.

Find the equation of the line perpendicular to CD that passes through the point $(1, 3)$.

Give your answer in the form $y = mx + c$.

$y = \dots\dots\dots$

(4 marks)

6 The line PQ has equation $y = 3x - 8$ and point P has co-ordinates $(6, 10)$.

Find the equation of the line that passes through P and is perpendicular to PQ .

Give your answer in the form $y = mx + c$.

$y = \dots\dots\dots$

(3 marks)

- 7** Find the equation of the straight line that is perpendicular to the line $y = \frac{1}{2}x + 1$ and passes through the point $(1, 3)$.

(3 marks)

- 8 (a)** The point P has co-ordinates $(10, 12)$ and the point Q has co-ordinates $(2, -4)$. Find

i) the co-ordinates of the mid-point of the line PQ ,

(..... ,) [2]

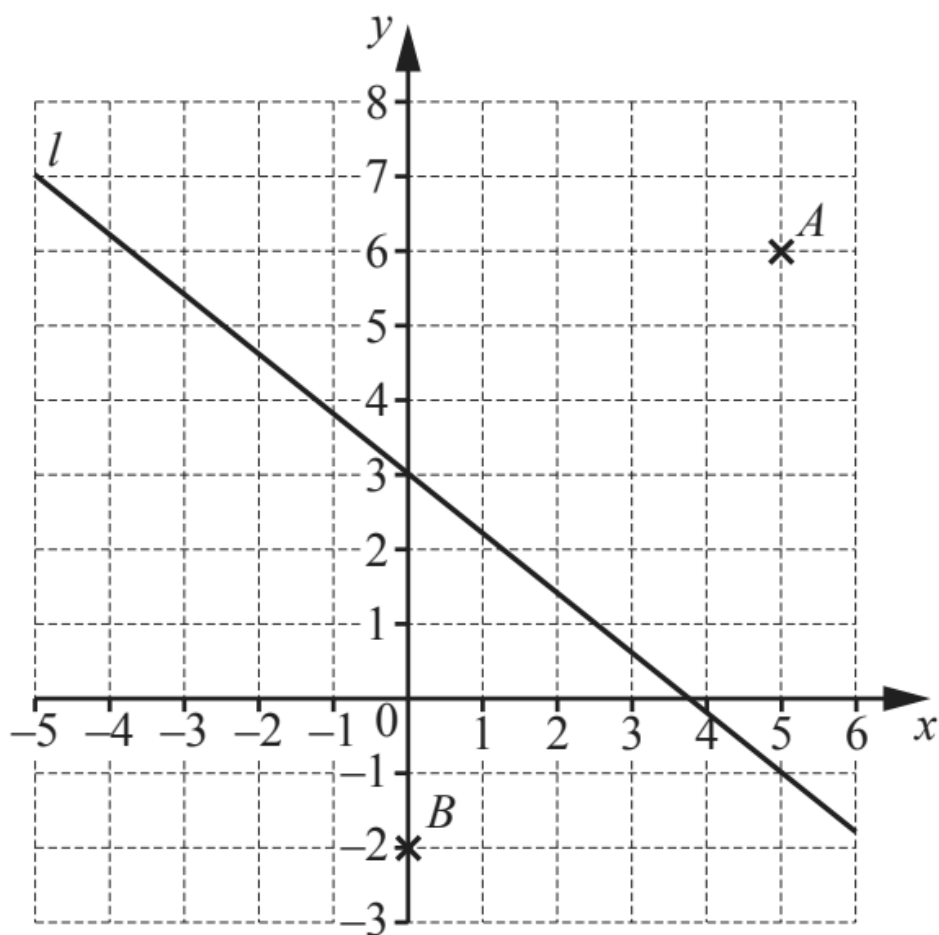
ii) the gradient of the line PQ ,

[2]

(4 marks)

- (b)** Find the equation of a line perpendicular to PQ that passes through the point $(2, 3)$.

(3 marks)



C is the point $(8, 14)$.

Write down the equation of the line perpendicular to line l that passes through the point C .

(3 marks)