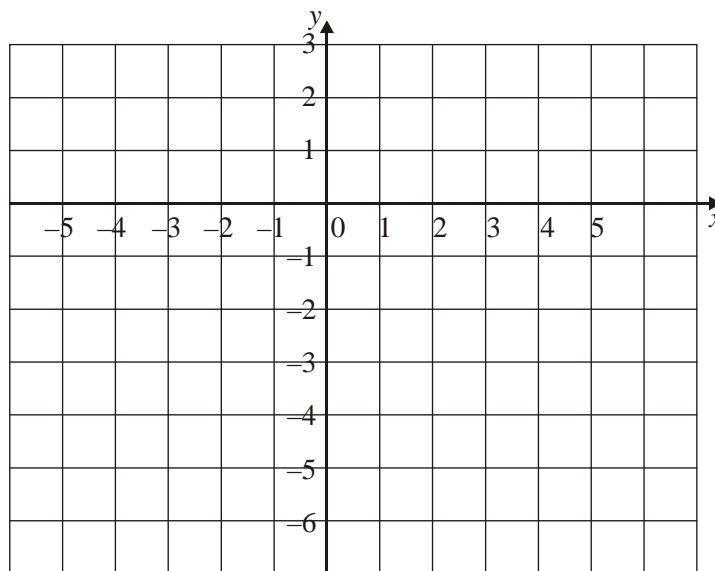


Linear eq P1

42 min
46 marks

1.



- (a) On the grid above, draw a straight line with a gradient of -3 that passes through the point $(-2, 0)$.
- (b) Find the equation of this line.

(Total 8 marks)

2. The diagram below shows the line PQ, whose equation is $x + 2y = 12$. The line intercepts the axes at P and Q respectively.

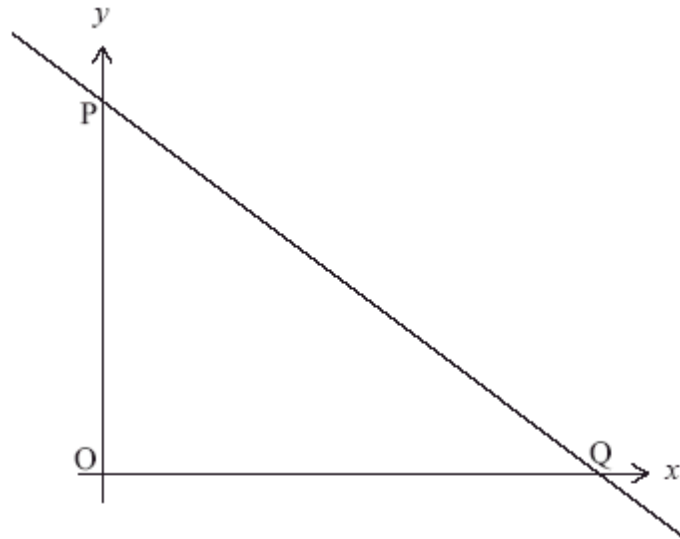


diagram not to scale

- (a) Find the coordinates of P and of Q.

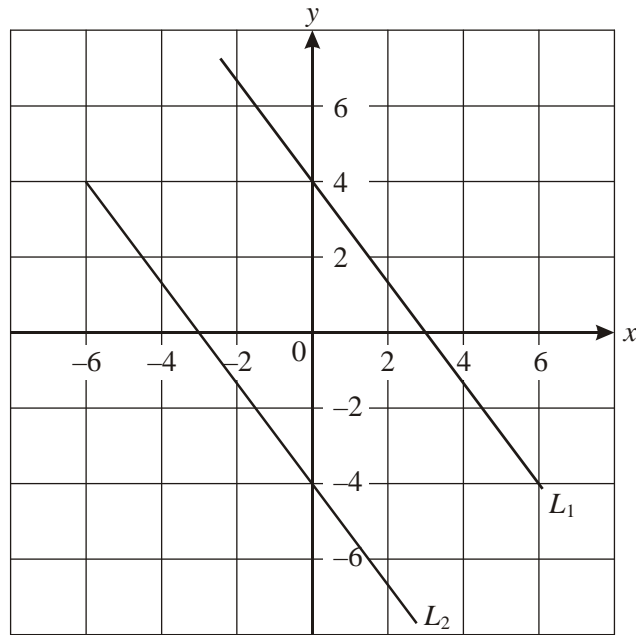
(3)

- (b) A second line with equation $x - y = 3$ intersects the line PQ at the point A. Find the coordinates of A.

(3)

(Total 6 marks)

3. In the diagram, the lines L_1 and L_2 are parallel.



- (a) What is the gradient of L_1 ?
- (b) Write down the equation of L_1 .
- (c) Write down the equation of L_2 in the form $ax + by + c = 0$.

(Total 4 marks)

4. The straight line, L_1 , has equation $y = -\frac{1}{2}x - 2$.

- (a) Write down the y intercept of L_1 . (1)

- (b) Write down the gradient of L_1 . (1)

The line L_2 is perpendicular to L_1 and passes through the point (3, 7).

(c) Write down the gradient of the line L_2 . (1)

(d) Find the equation of L_2 . Give your answer in the form $ax + by + d = 0$ where $a, b, d \in \mathbb{Z}$. (3)
(Total 6 marks)

5. The coordinates of the vertices of a triangle ABC are A (4, 3), B (7, -3) and C (0.5, p).

(a) Calculate the gradient of the line AB. (2)

(b) Given that the line AC is perpendicular to the line AB

(i) write down the gradient of the line AC;

(ii) find the value of p .

(4)
(Total 6 marks)

6. A line joins the points A(2, 1) and B(4, 5).

(a) Find the gradient of the line AB. (2)

Let M be the midpoint of the line segment AB.

(b) Write down the coordinates of M. (1)

(c) Find the equation of the line perpendicular to AB and passing through M. (3)
(Total 6 marks)

7. A straight line, L_1 , has equation $x + 4y + 34 = 0$.

(a) Find the gradient of L_1 .

(2)

The equation of line L_2 is $y = mx$. L_2 is perpendicular to L_1 .

(b) Find the value of m .

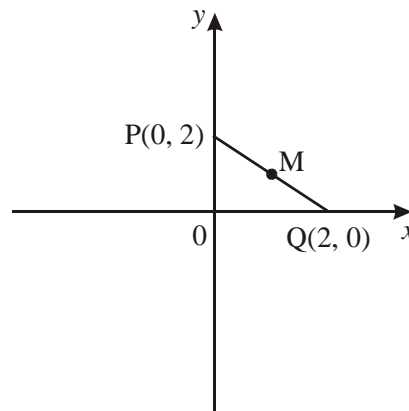
(2)

(c) Find the coordinates of the point of intersection of the lines L_1 and L_2 .

(2)

(Total 6 marks)

8. The following diagram shows the points P, Q and M. M is the midpoint of [PQ].



(a) Write down the equation of the line (PQ).

(b) Write down the equation of the line through M which is perpendicular to the line (PQ).

(Total 4 marks)