



Straight Line Graphs

Questions

Suitable for:

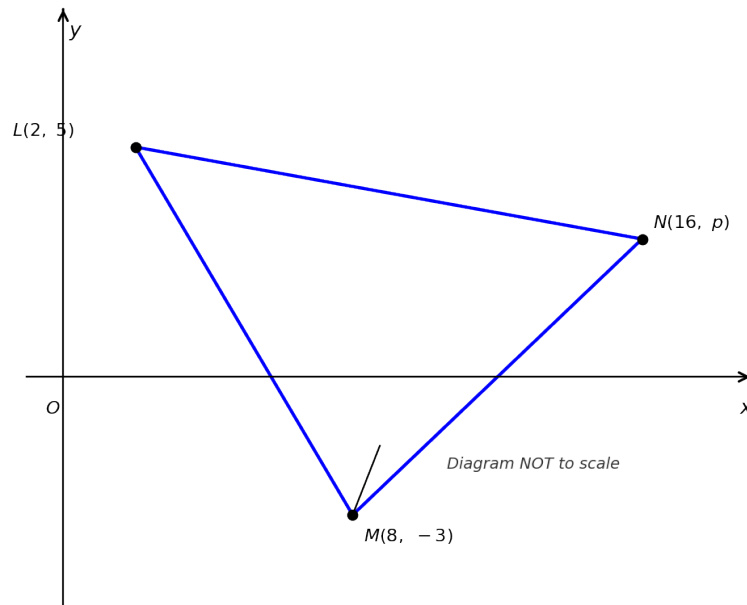
Pearson Edexcel International A-Level (iAL) — Pure Mathematics 1



Question 1

Figure 1 shows a right-angled triangle LMN .

The points L and M have coordinates $(2, 5)$ and $(8, -3)$ respectively.



- (a) Find an equation for the straight line passing through L and M . Give your answer in the form $ax + by + c = 0$, where a , b and c are integers.

(4 marks)

Given that the coordinates of point N are $(16, p)$, where p is a constant, and angle $LMN = 90^\circ$,

- (b) find the value of p .

(3 marks)

Given that there is a point K such that L , M , N and K form a rectangle,

- (c) find the y-coordinate of K .

(2 marks)

Total for question = 9 marks

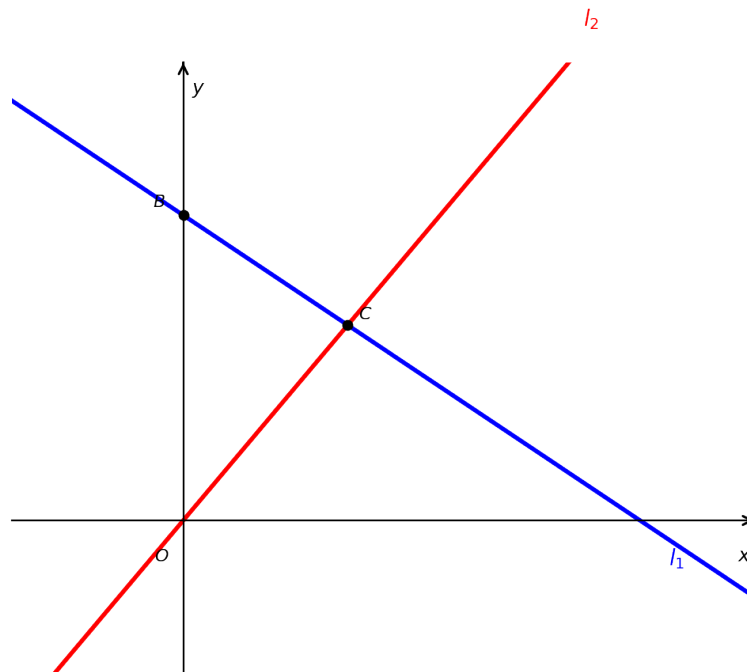


Question 2

The line l_1 has equation

$$3x + 4y = 24$$

The line l_2 passes through the origin O and is perpendicular to l_1 .



(a) Find an equation for the line l_2 .

(4 marks)

The line l_2 intersects l_1 at the point C . Line l_1 crosses the y -axis at the point B .

(b) Find the area of triangle OBC . Give your answer in the form a/b , where a and b are integers.

(6 marks)

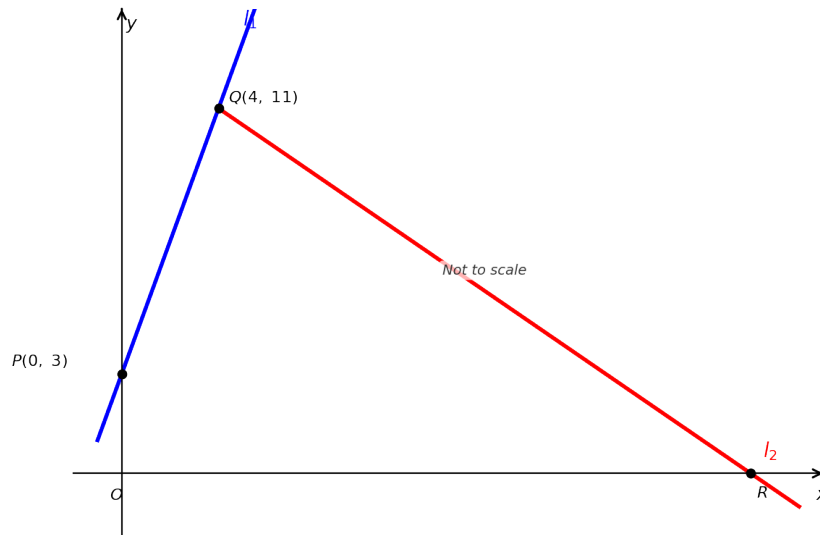
Total for question = 10 marks



Question 3

The points $P(0, 3)$ and $Q(4, 11)$ lie on the line l_1 .

The line l_2 is perpendicular to l_1 , passes through Q and crosses the x -axis at the point R .



Find

(a) an equation for l_2 , giving your answer in the form $ax + by + c = 0$, where a , b and c are integers,

(5 marks)

(b) the exact coordinates of R ,

(2 marks)

(c) the exact area of the quadrilateral $ORQP$, where O is the origin.

(5 marks)

Total for question = 12 marks





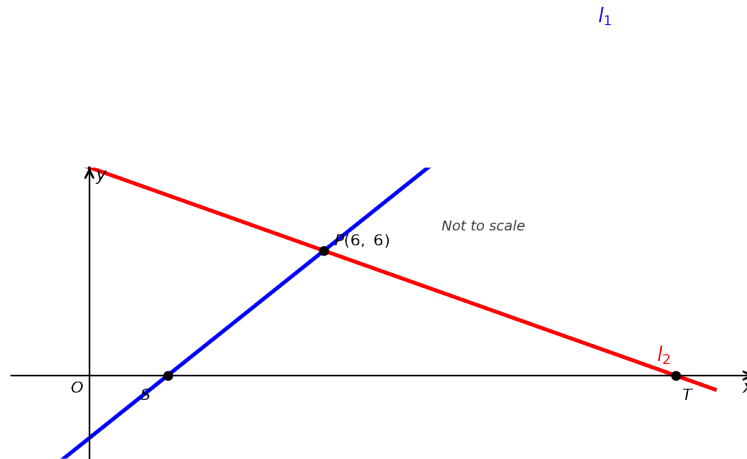
Question 4

The straight line l_1 has equation

$$2y = 3x - 6$$

The point P with x -coordinate 6 lies on l_1 .

The straight line l_2 is perpendicular to l_1 and passes through P .



- (a) Find an equation for l_2 , writing your answer in the form $ax + by + c = 0$ where a , b and c are integers.

(4 marks)

The lines l_1 and l_2 cut the x -axis at the points S and T respectively.

- (b) Calculate the area of triangle SPT .

(4 marks)

Total for question = 8 marks



Question 5

The line l_1 has equation

$$4x - 3y + 24 = 0$$

(a) Find the gradient of l_1 .

(1 marks)

The line l_1 crosses the x -axis at the point A and the y -axis at the point B .

The line l_2 is perpendicular to l_1 and passes through B .

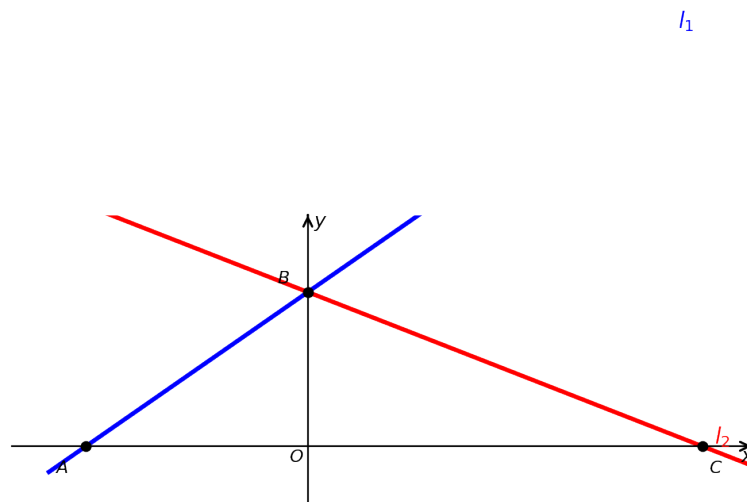
(b) Find an equation of l_2 .

(3 marks)

The line l_2 crosses the x -axis at the point C .

(c) Find the area of triangle ABC .

(4 marks)



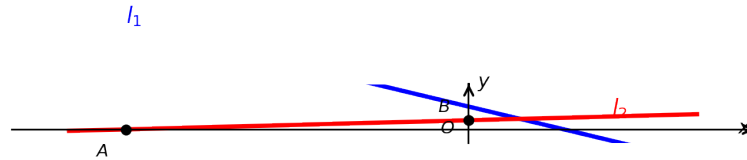
Total for question = 8 marks



Question 6

The line l_1 has equation $y = -3x + 5$.

The line l_2 is perpendicular to l_1 and passes through the point $(6, 4)$.



- (a) Find an equation for l_2 in the form $ax + by + c = 0$, where a , b and c are integers.

(3 marks)

The line l_2 crosses the x -axis at the point A and the y -axis at the point B .

- (b) Find the x -coordinate of A and the y -coordinate of B .

(2 marks)

Given that O is the origin,

- (c) find the area of triangle OAB .

(2 marks)

Total for question = 7 marks