

Year 1 Pure Chapter 5: Coordinate Geometry - Exam Questions (Total Marks 61)

1. The line l_1 has equation $3x + 5y - 2 = 0$

(a) Find the gradient of l_1 .

(2)

The line l_2 is perpendicular to l_1 and passes through the point (3, 1).

(b) Find the equation of l_2 in the form $y = mx + c$, where m and c are constants.

(3)

(Total 5 marks)

2. The point $A(-6, 4)$ and the point $B(8, -3)$ lie on the line L .

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

(4)

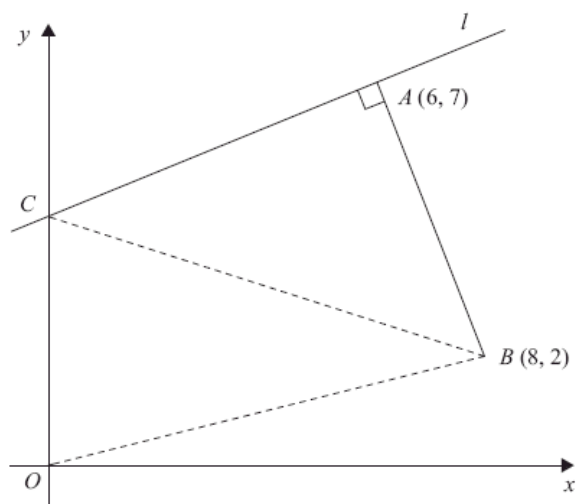
(b) Find the distance AB , giving your answer in the form $k\sqrt{5}$, where k is an integer.

(3)

(Total 7 marks)

3. (a) Find an equation of the line joining $A(7, 4)$ and $B(2, 0)$, giving your answer in the form $ax + by + c = 0$, where a , b and c are integers. (3)
- (b) Find the length of AB , leaving your answer in surd form. (2)
- The point C has coordinates $(2, t)$, where $t > 0$, and $AC = AB$.
- (c) Find the value of t . (1)
- (d) Find the area of triangle ABC . (2)
- (Total 8 marks)

4.



The points A and B have coordinates $(6, 7)$ and $(8, 2)$ respectively.

The line l passes through the point A and is perpendicular to the line AB , as shown in the diagram above.

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

(4)

Given that l intersects the y -axis at the point C , find

- (b) the coordinates of C ,

(2)

- (c) the area of $\triangle OCB$, where O is the origin.

(2)

(Total 8 marks)

5. The line l_1 has equation $y = 3x + 2$ and the line l_2 has equation $3x + 2y - 8 = 0$.

(a) Find the gradient of the line l_2 .

(2)

The point of intersection of l_1 and l_2 is P .

(b) Find the coordinates of P .

(3)

The lines l_1 and l_2 cross the line $y = 1$ at the points A and B respectively.

(c) Find the area of triangle ABP .

(4)

(Total 9 marks)

6. The straight line l_1 with equation $y = \frac{3}{2}x - 2$ crosses the y -axis at the point P . The point Q has coordinates $(5, -3)$.

(a) Calculate the coordinates of the mid-point of PQ .

(3)

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

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

(4)

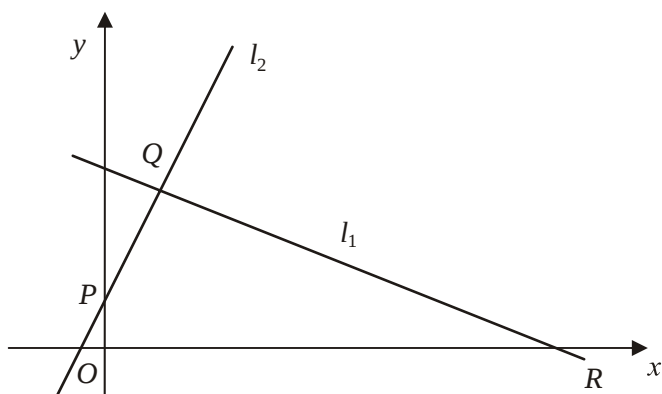
The lines l_1 and l_2 intersect at the point R .

(c) Calculate the exact coordinates of R .

(4)

(Total 11 marks)

7.



The points $Q(1, 3)$ and $R(7, 0)$ lie on the line l_1 , as shown in the diagram above.

The length of QR is $a\sqrt{5}$.

(a) Find the value of a .

(3)

The line l_2 is perpendicular to l_1 , passes through Q and crosses the y -axis at the point P , as shown in the diagram above.

Find

(b) an equation for l_2 ,

(5)

(c) the coordinates of P ,

(1)

(d) the area of $\triangle PQR$.

(4)

(Total 13 marks)