

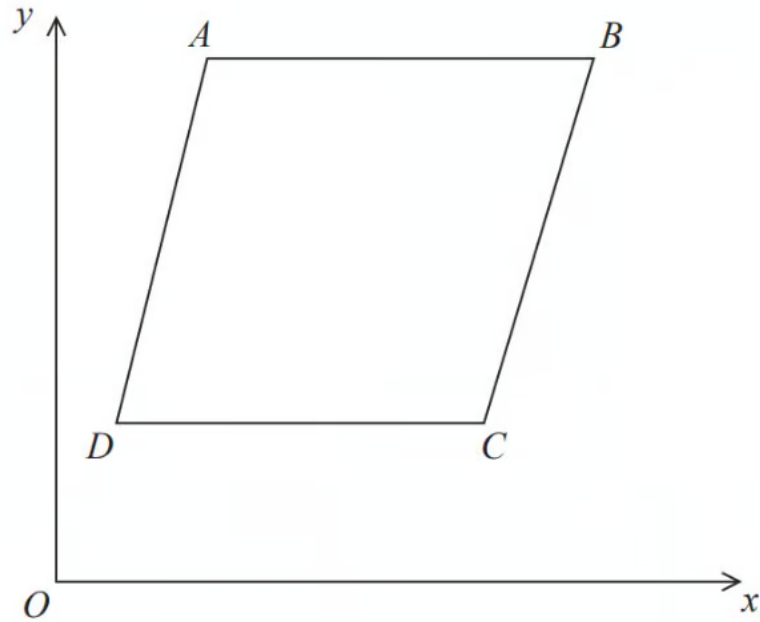
Linear Graphs $y = mx + c$

Question Paper

Course	Edexcel IGCSE Maths
Section	3. Sequences, Functions & Graphs
Topic	Linear Graphs $y = mx + c$
Difficulty	Very Hard

Time allowed: 70
Score: /57
Percentage: /100

Question 1



$ABCD$ is a rhombus.

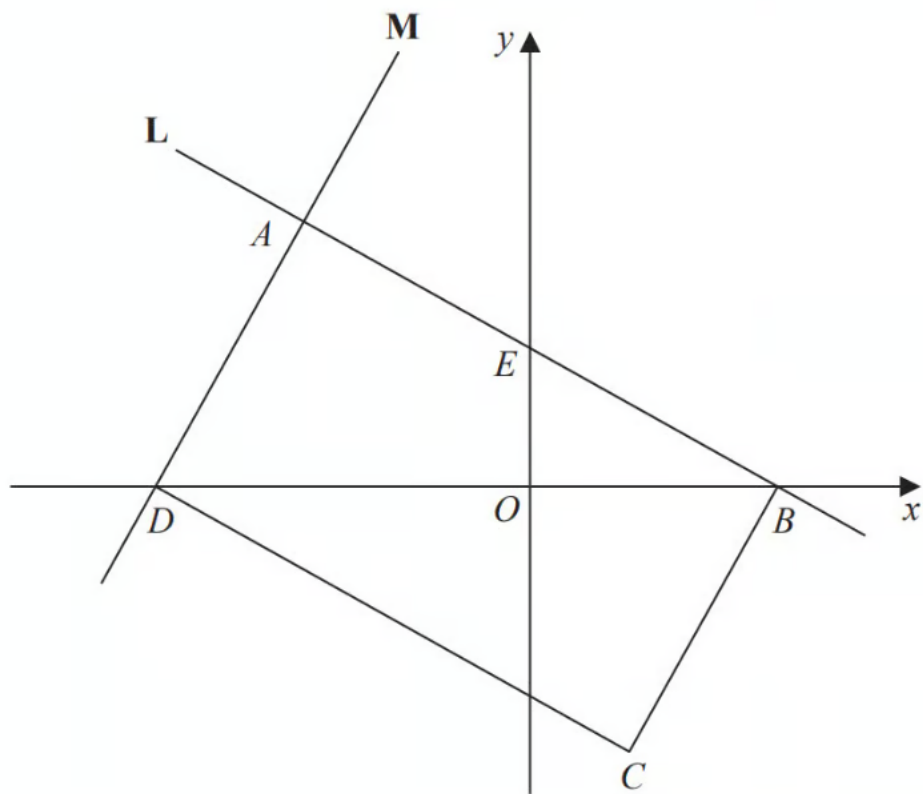
The coordinates of A are $(5, 11)$

The equation of the diagonal DB is $y = \frac{1}{2}x + 6$

Find an equation of the diagonal AC .

[4 marks]

Question 2



$ABCD$ is a rectangle.

A , E and B are points on the straight line L with equation $x + 2y = 12$

A and D are points on the straight line M .

$$AE = EB$$

Find an equation for M .

[4 marks]

Question 3a

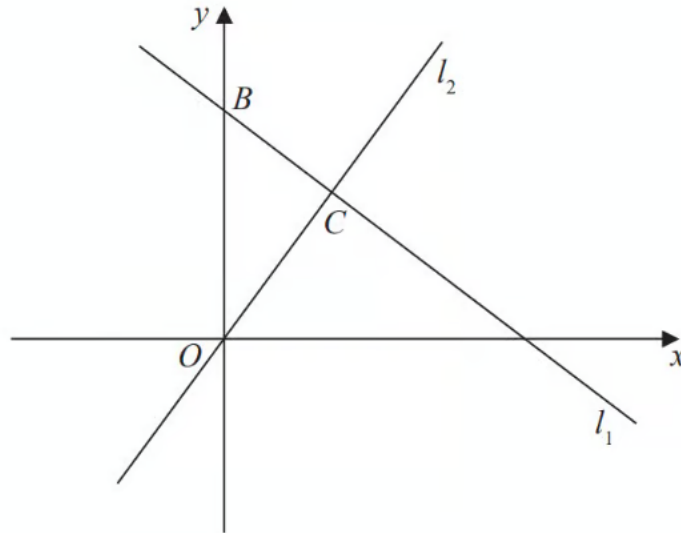


Figure 2

The line l_1 , shown in Figure 2 has equation $2x + 3y = 26$

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

Find an equation for the line l_2

[4 marks]

Question 3b

The line I_2 intersects the line I_1 at the point C .

Line I_1 crosses the y -axis at the point B as shown in Figure 2.

Find the area of triangle OBC .

Give your answer in the form $\frac{a}{b}$, where a and b are integers to be determined.

[6 marks]

Question 4

The point P has coordinates $(3, 4)$

The point Q has coordinates (a, b)

A line perpendicular to PQ is given by the equation $3x + 2y = 7$

Find an expression for b in terms of a .

[5 marks]

Question 5

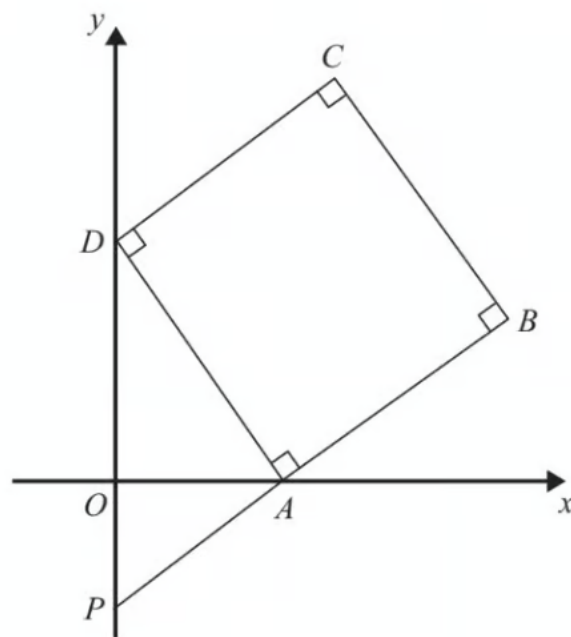


Diagram **NOT**
accurately drawn

$ABCD$ is a square.

P and D are points on the y -axis.

A is a point on the x -axis.

PAB is a straight line.

The equation of the line that passes through the points A and D is $y = -2x + 6$

Find the length of PD .

[4 marks]

Question 6

$A(-2, 1)$, $B(6, 5)$ and $C(4, k)$ are the vertices of a right-angled triangle ABC .
Angle ABC is the right angle.

Find an equation of the line that passes through A and C .

Give your answer in the form $ay + bx = c$ where a , b and c are integers.

[5 marks]

Question 7

The points A and B have coordinates $(3, 4)$ and $(7, -6)$ respectively. The straight line l passes through A and is perpendicular to AB . Find an equation for l , giving your answer in the form $ax + by + c = 0$, where a , b and c are integers.

[4 marks]

Question 8

ABC is an isosceles triangle with $AB = AC$.

B is the point with coordinates $(-1, 5)$

C is the point with coordinates $(2, 10)$

M is the midpoint of BC .

Find an equation of the line through the points A and M .

Give your answer in the form $py + qx = r$ where p , q and r are integers.

[5 marks]

Question 9

L_1 and L_2 are two straight lines.

The origin of the coordinate axes is O .

L_1 has equation $5x + 10y = 8$

L_2 is perpendicular to L_1 and passes through the point with coordinates $(8, 6)$

L_2 crosses the x -axis at the point A .

L_2 intersects the straight line with equation $x = -3$ at the point B .

Find the area of triangle AOB .

Show your working clearly.

[5 marks]

Question 10

The straight line L passes through point $A(-6, 2)$ and point $B(5, 3)$

The straight line M is perpendicular to L and passes through the midpoint of A and B .

The line M intersects the line $x = -1$ at point C .

Calculate the area of triangle ABC .

[7 marks]

Question 11

Line A has equation $y = 4x - 1$

Line B is

perpendicular to line A

and

passes through the point (8, 5)

Work out the coordinates of the point where line B intersects the x -axis.

[4 marks]