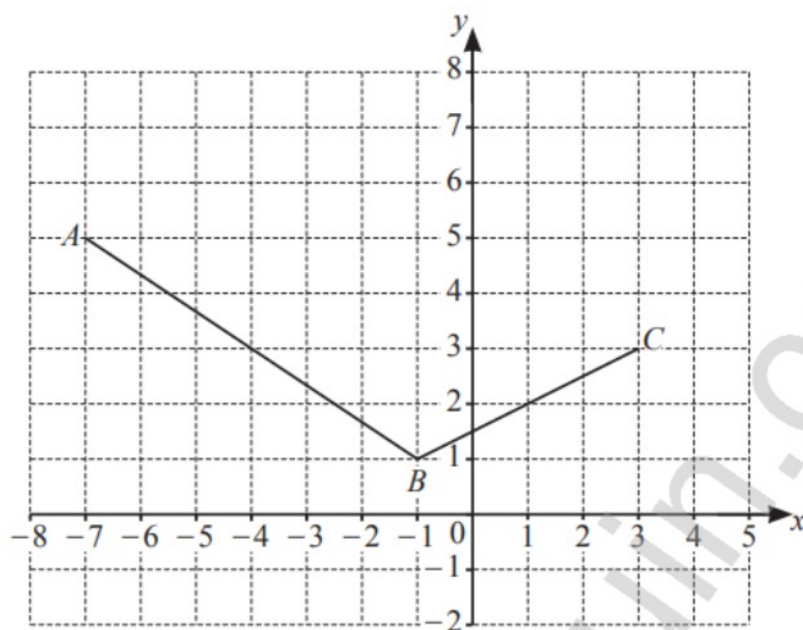


Q Straight Line Graphs

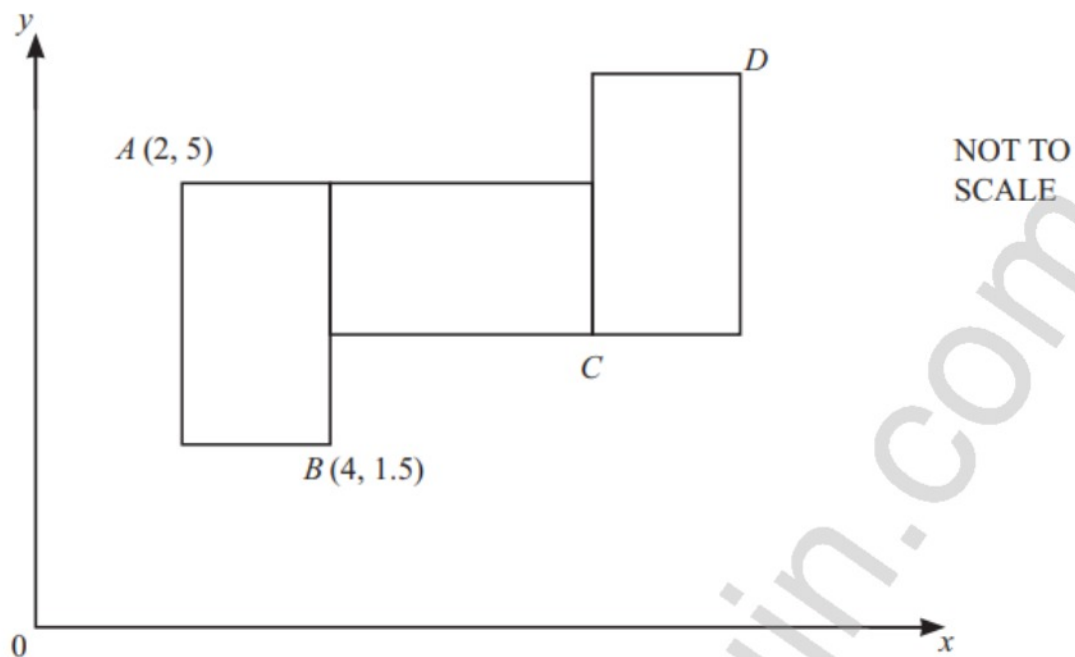
1



The diagram shows two sides of a parallelogram $ABCD$.

Find the coordinates of point D .

(..... ,) [2]



A pattern is formed by 3 congruent rectangles.

Each rectangle is a rotation of 90° around one vertex of the rectangle next to it.

The point A has coordinates $(2, 5)$.

The point B has coordinates $(4, 1.5)$.

Work out the coordinates of point C and point D .

C (..... ,)

D (..... ,)

[3]

- 9 The line $y = 2x - 5$ intersects the line $y = 3$ at the point P .

Find the coordinates of the point P .

(..... ,) [2]

- 5 (a) Write down the gradient of the line $y = 5x + 7$.

..... [1]

- (b) Find the coordinates of the point where the line $y = 5x + 7$ crosses the y -axis.

(.....) [1]

- 10 A is the point $(-1, 13)$ and B is the point $(3, 1)$.

Find the equation of the line AB , giving your answer in the form $y = mx + c$.

$y =$ [3]

- 16 A is the point $(5, 7)$ and B is the point $(9, -1)$.

- (b) Find the equation of the line AB .

..... [3]

9 (a) 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]

18 Find the equation of the straight line that passes through the points $(2, -2)$ and $(3, 10)$.

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

$y =$ [3]

24 (a) A is the point $(a, 12)$ and B is the point $(b, 27)$.

(i) Find the y -coordinate of the midpoint of AB .

..... [1]

(ii) The line AB has gradient 3.

Find an expression for a in terms of b .

$a =$ [3]

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

..... [2]

- 15 (a) A is the point $(3, 16)$ and B is the point $(8, 31)$.

Find the equation of the line that passes through A and B .
Give your answer in the form $y = mx + c$.

$y = \dots\dots\dots$ [3]

- (b) The line CD has equation $y = 0.5x - 11$.

Find the gradient of a line that is perpendicular to the line CD .

$\dots\dots\dots$ [1]

- 17 Find the gradient of the line that is perpendicular to the line $3y = 4x - 5$.

$\dots\dots\dots$ [2]

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

(a) Write down the gradient of line l .

..... [1]

(b) Find the coordinates of the point where line l crosses the x -axis.

(.....,) [2]

(c) A line perpendicular to line l has gradient k .

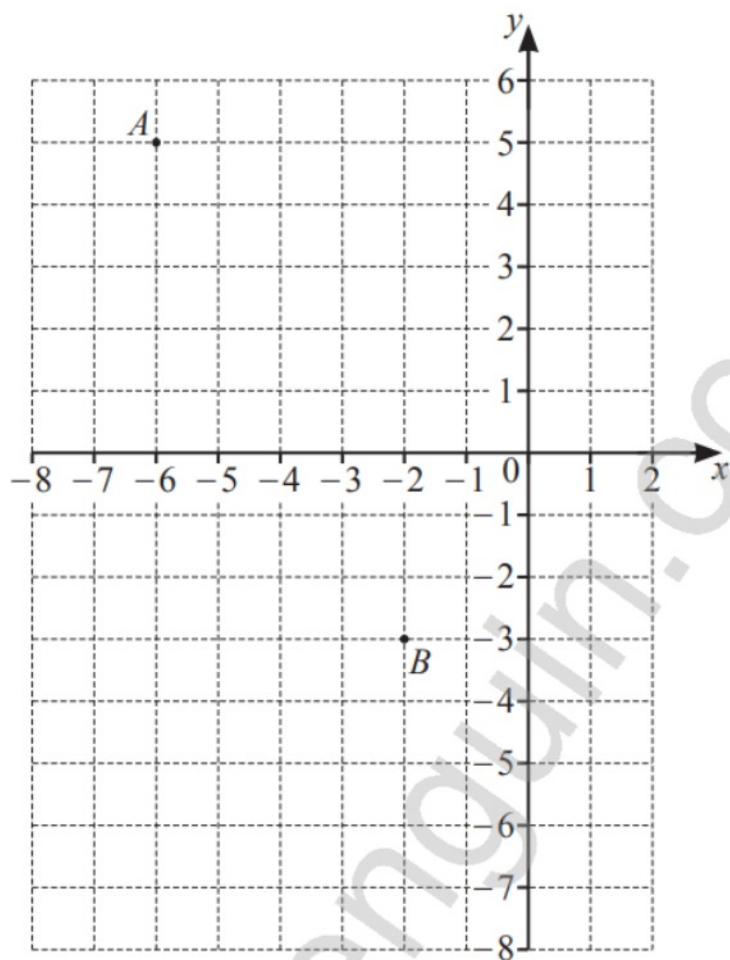
Find the value of k .

$k =$ [1]

11 Line L has equation $y = 4 - 5x$.

Find the equation of a line that is perpendicular to line L and passes through the point $(0, 6)$.

..... [3]



A is the point $(-6, 5)$ and B is the point $(-2, -3)$.

- (a) Find the equation of the straight line, l , that passes through point A and point B .
Give your answer in the form $y = mx + c$.

$y = \dots\dots\dots$ [2]

- (b) Find the equation of the line that is perpendicular to l and passes through the origin.

$\dots\dots\dots$ [2]

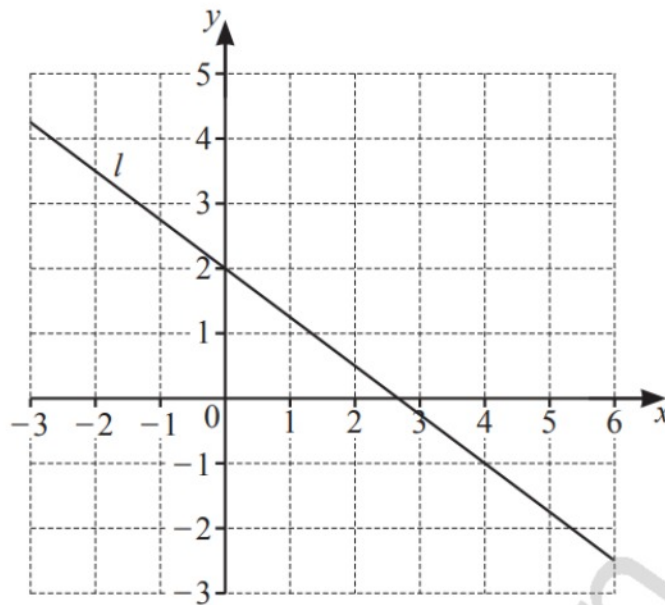
16 A is the point $(7, 2)$ and B is the point $(-5, 8)$.

(a) Calculate the length of AB .

..... [3]

(b) Find the equation of the line that is perpendicular to AB and that passes through the point $(-1, 3)$.
Give your answer in the form $y = mx + c$.

$y =$ [4]



- (a) Find the gradient of line l .

..... [2]

- (b) Find the equation of line l in the form $y = mx + c$.

$y =$ [2]

- (c) Find the equation of the line that is perpendicular to line l and passes through the point $(12, -7)$.
Give your answer in the form $y = mx + c$.

$y =$ [3]

- 9 A is the point $(1, 3)$ and B is the point $(3, -7)$.
The line l passes through A and is perpendicular to AB .

Find the equation of line l .

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

..... [4]

- 26 A is the point $(6, 1)$ and B is the point $(2, 7)$.

Find the equation of the perpendicular bisector of AB .

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

$y =$ [5]

13 A is the point $(1, 7)$ and B is the point $(4, 1)$.

Find the equation of the perpendicular bisector of AB in the form $y = mx + c$.

$y = \dots\dots\dots$ [5]

(b) The coordinates of P are $(-3, 8)$ and the coordinates of Q are $(9, -2)$.

(ii) Find the equation of the line parallel to PQ that passes through the point $(6, -1)$.

..... [3]

(iii) Find the equation of the perpendicular bisector of PQ .

..... [4]

- 8 AB is a line with midpoint M .
 A is the point $(2, 3)$ and M is the point $(12, 7)$.

(a) Find the coordinates of B .

(..... ,) [2]

(b) Show that the equation of the perpendicular bisector of AB is $2y + 5x = 74$.

15 C is the point $(5, -1)$ and D is the point $(13, 15)$.

(a) Find the midpoint of CD .

(.....) [2]

(b) Find the gradient of CD .

..... [2]

(c) Find the equation of the perpendicular bisector of CD .
Give your answer in the form $y = mx + c$.

$y =$ [3]

10 A is the point $(-5, 7)$ and C is the point $(1, -2)$.

(a) B is the mid-point of AC .

Find the coordinates of B .

(.....,) [2]

(b) The line CD is perpendicular to the line AC .

Find the equation of line CD .

..... [4]

14 The line L is perpendicular to the line $2y = 5 - x$ and passes through the point $(2, 3)$.

Find the equation of line L .

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

$y =$ [4]

10 (a) A rhombus $ABCD$ has a diagonal AC where A is the point $(-3, 10)$ and C is the point $(4, -4)$.

(i) Calculate the length AC .

..... [3]

(ii) Show that the equation of the line AC is $y = -2x + 4$.

[2]

(iii) Find the equation of the line BD .

..... [4]

- 16** A kite is drawn on a coordinate grid.
The diagonals of the kite intersect at the point $(-2, -5)$.

One diagonal has equation $y = 4x + 3$.

Find the equation of the other diagonal of the kite.
Give your answer in the form $y = mx + c$.

$y = \dots\dots\dots$ [3]

- 24** A line from the point $(2, 3)$ is perpendicular to the line $y = \frac{1}{3}x + 1$.
The two lines meet at the point P .

Find the coordinates of P .

$(\dots\dots\dots, \dots\dots\dots)$ [5]

- 16** The point A has coordinates $(2, 3)$ and the point B has coordinates $(6, 5)$.
The point C lies on the line AB .
The point D has coordinates $(2, 5.5)$.
 CD is perpendicular to AB .

Find the coordinates of C .

(..... ,) [5]