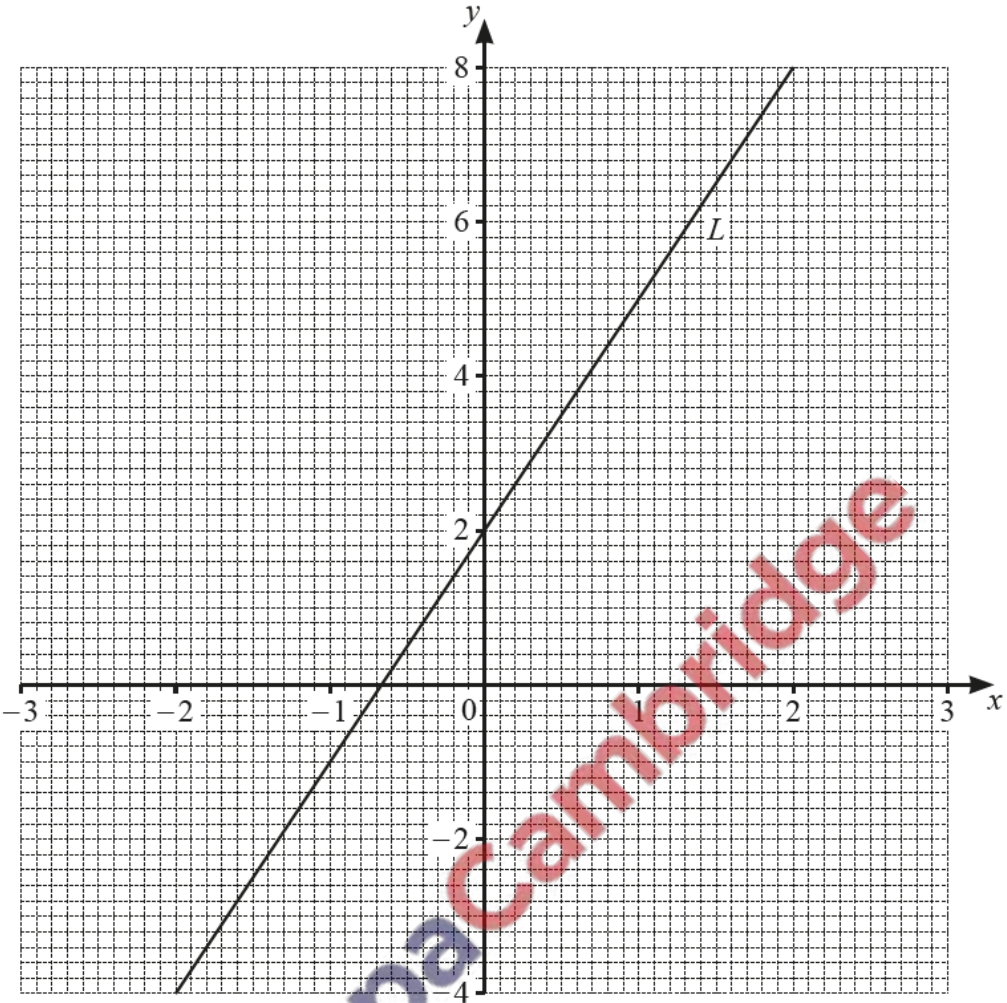
Coordinate geometry – 2021 IGCSE 0580

1. Nov/2021/Paper_11/No.19

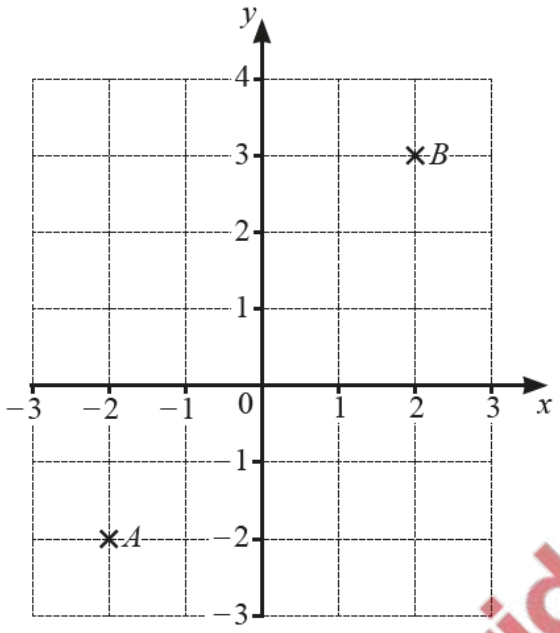


Find the equation of line L.
Give your answer in the form $y = mx + c$.

$y =$ ..... [3]

2. Nov/2021/Paper_13/No.2

Points A and B are plotted on the grid.



(a) Write down the coordinates of point B.

(..... , ...) [1]

(b) Write $\overrightarrow{AB}$ as a vector.

( ) [1]

(c) On the grid, plot point C at $(-2, 3)$. [1]

3. Nov/2021/Paper_21/No.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]

4. Nov/2021/Paper_22/No.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 $y = mx + c$.

$y =$ ..... [3]

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

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

..... [1]

5. Nov/2021/Paper_23/No.18

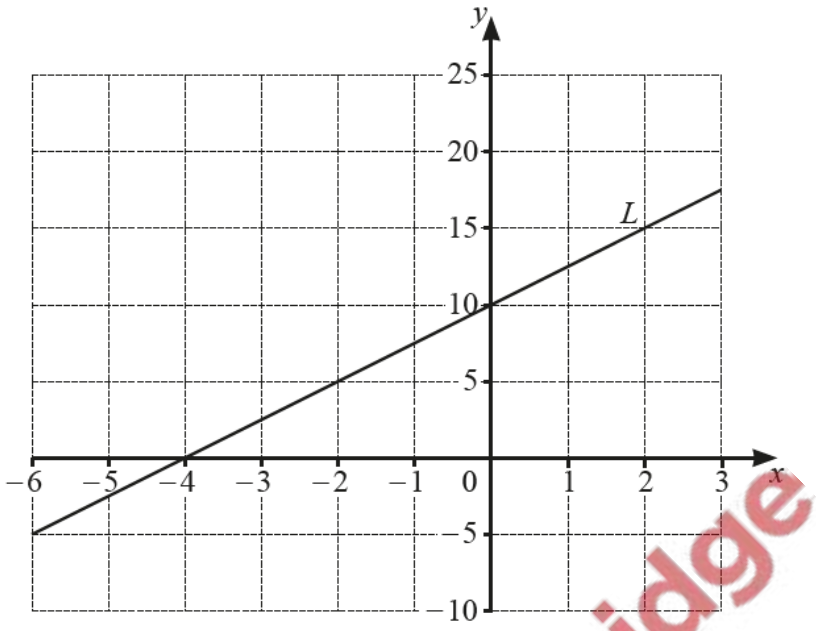
Find the equation of the straight line that passes through the points $(2, -2)$ and $(3, 10)$.

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

$y =$ ..... [3]

6. Nov/2021/Paper_33/No.8

(a) Line L is shown on the grid.



Find the equation of line L in the form $y = mx + c$.

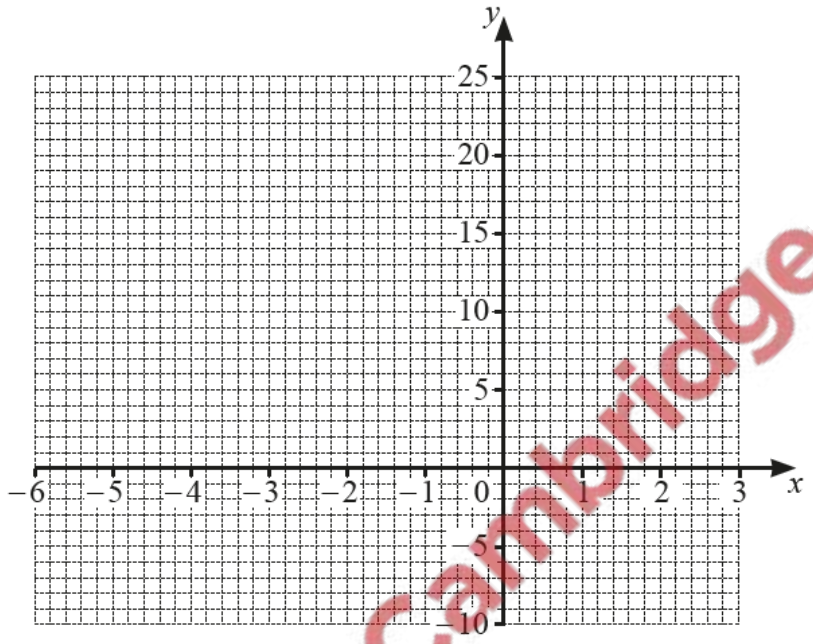
$y =$ ..... [3]

(b) (i) Complete the table of values for $y = x^2 + 4x$.

x	−6	−5	−4	−3	−2	−1	0	1	2	3
y	12	5	0	−3		−3	0	5	12	

[2]

(ii) On the grid, draw the graph of $y = x^2 + 4x$ for $-6 \leqslant x \leqslant 3$.



[4]

(iii) Use your graph to solve the equation $x^2 + 4x = 10$.

$x =$ ..... or $x =$ ..... [2]

7. Nov/2021/Paper_42/No.10

(a) Find the coordinates of the turning points of the graph of $y = x^3 - 12x + 6$.
You must show all your working.

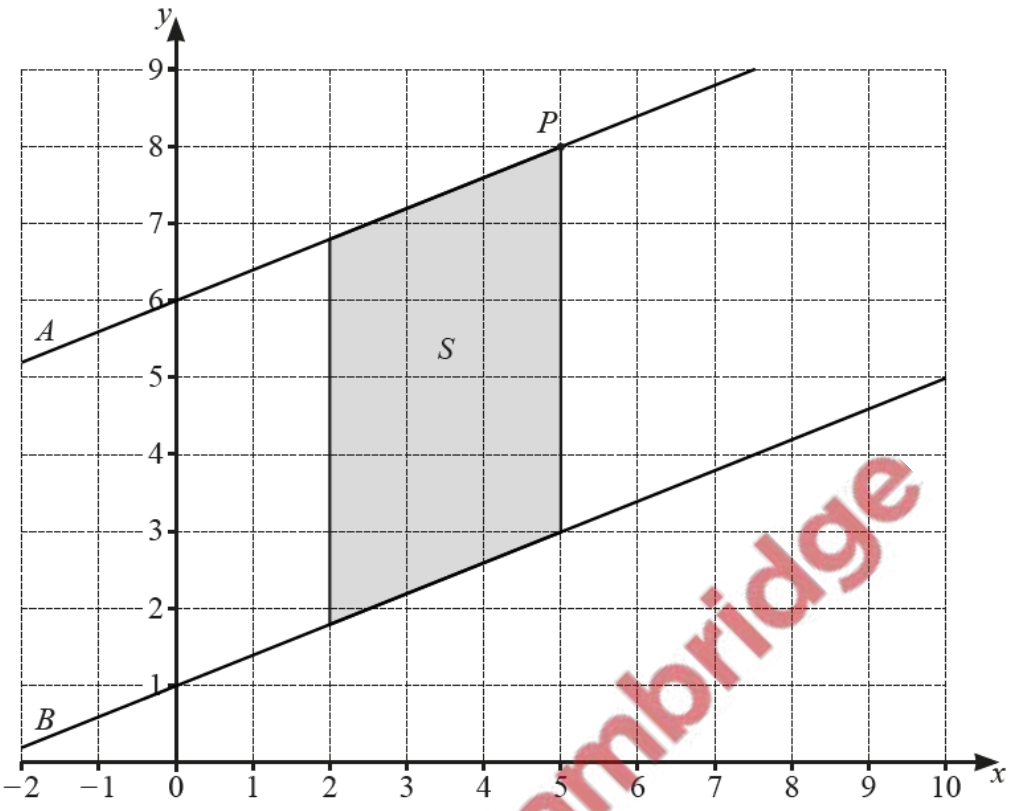
(..... , ...) and (..... , ...) [5]

(b) Determine whether each turning point is a maximum or a minimum.
Show how you decide.

[3]

8. March/2021/Paper_32/No.6

The diagram shows a point P, a shape S and lines A and B on a 1cm^2 grid.



(a) Line A is parallel to line B.

Explain what parallel means.

..... [1]

(b) Write down the coordinates of point P.

(..... , ...) [1]

(c) **(i)** Write down the mathematical name for shape S.

..... [1]

(ii) Work out the area of shape S.

..... cm^2 [1]

(d) **(i)** Find the gradient of line A.

..... [1]

(ii) Write down the equation of line A.

..... [2]

9. March/2021/Paper_42/No.12

(a) Find the gradient of the curve $y = 2x^3 - 7x + 4$ when $x = -2$.

..... [3]

(b) A is the point (7, 2) and B is the point (−5, 8).

(i) Calculate the length of AB.

..... [3]

(ii) 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]

(iii) AB is one side of the parallelogram $ABCD$ and

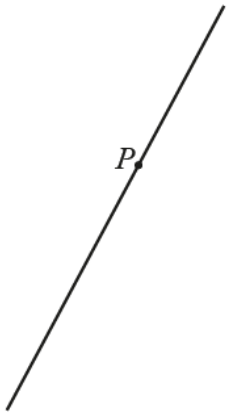
- $\overrightarrow{BC} = \begin{pmatrix} -a \\ -b \end{pmatrix}$ where $a > 0$ and $b > 0$
- the gradient of BC is 1
- $\left|\overrightarrow{BC}\right| = \sqrt{8}$.

Find the coordinates of D.

(..... , ...) [4]

10. June/2021/Paper_12/No.3

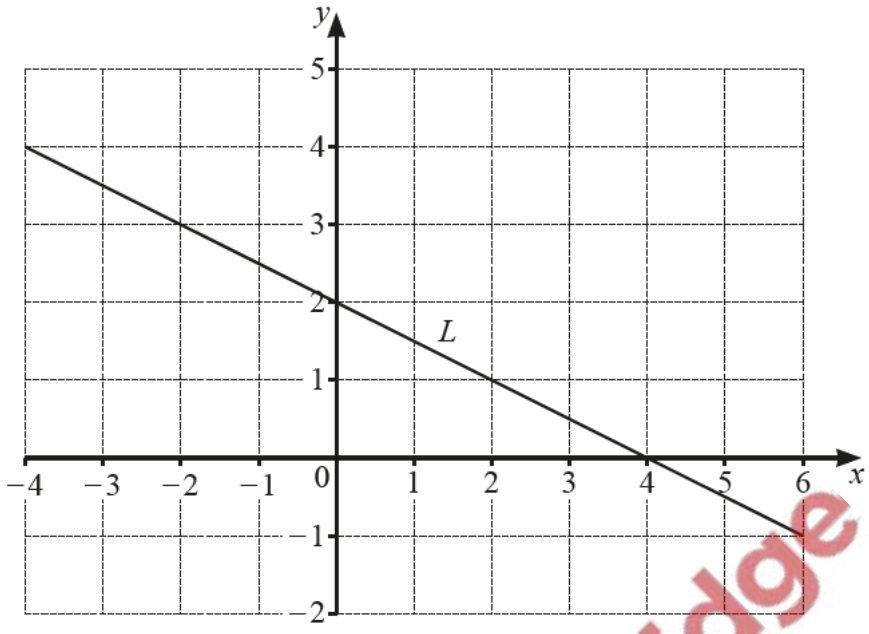
P is a point on a line.



Draw a line through point P that is perpendicular to this line. [1]

11. June/2021/Paper_13/No.21

(a)



Find the equation of line L in the form $y = mx + c$.

$y =$ ..... [2]

(b) Find the equation of the line which is

- parallel to the line $y = 3x - 5$

and

- passes through the point (0, 17).

..... [1]

12. June/2021/Paper_21/No.9

A is the point $(5, -5)$ and B is the point $(9, 3)$.

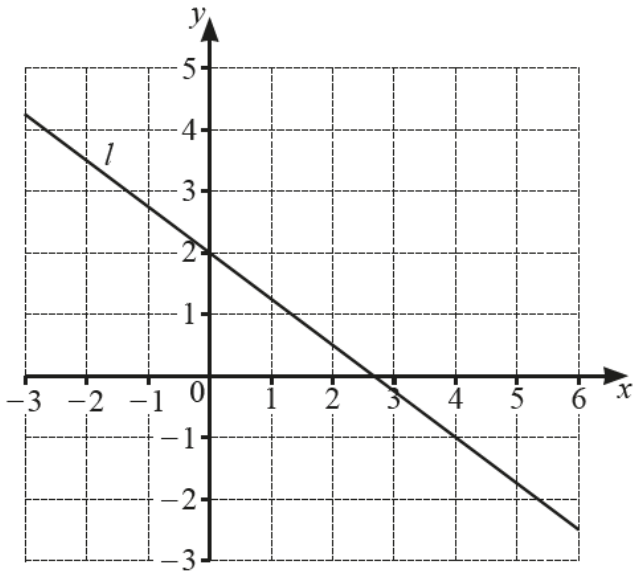
(a) Find the coordinates of the midpoint of AB.

(....., ...) [2]

(b) Find the length of AB.

..... [3]

13. June/2021/Paper_21/No.16



(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]

14. June/2021/Paper_22/No.16

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

(a) Find the length AB.

..... [3]

(b) Find the equation of the line AB.

..... [3]

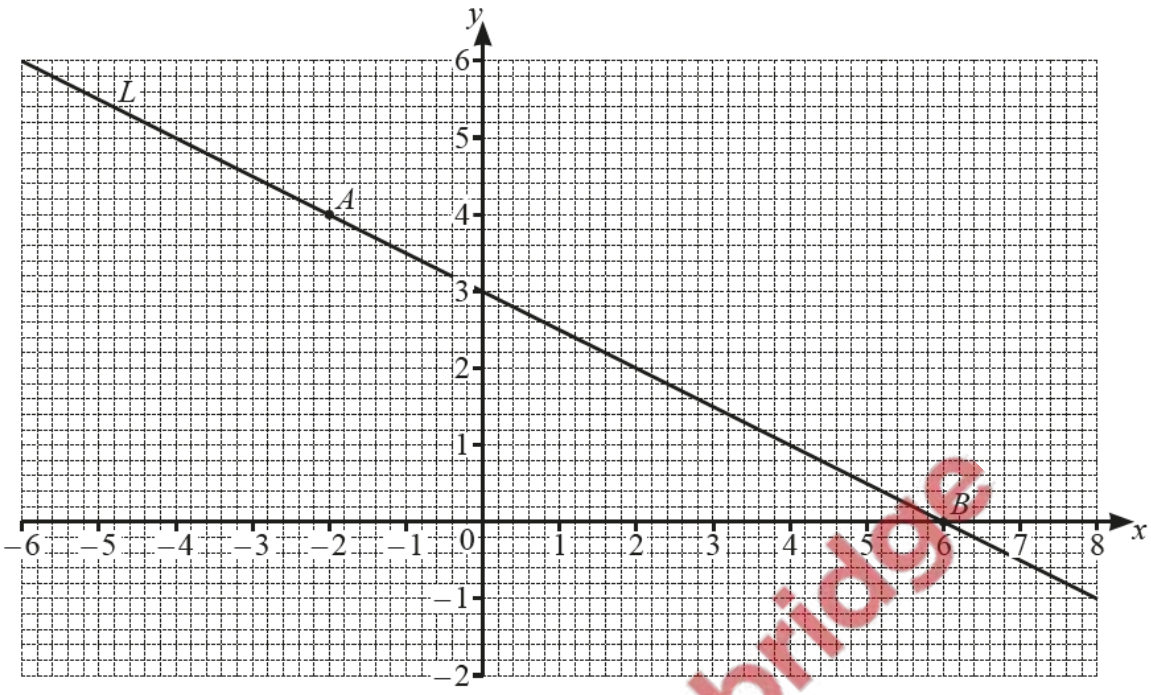
15. June/2021/Paper_22/No.17

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

..... [2]

16. June/2021/Paper_31/No.4

The diagram shows a line L and two points, A and B, on a grid.



(a) Write down the coordinates of point A.

(..... , ...) [1]

(b) **(i)** Find the gradient of line L.

..... [1]

(ii) Write down the equation of line L in the form $y = mx + c$.

$y =$ ..... [2]

(c) **(i)** Draw a line that is perpendicular to line L and passes through the point A. [1]

(ii) This line crosses the x-axis at point C.

Mark point C on the grid and write down the coordinates of point C.

(..... , ...) [1]

(iii) Find, by measuring, the perimeter of triangle ABC.

..... cm [2]

17. June/2021/Paper_43/No.4

(a) A is the point (1, 5) and B is the point (3, 9).
M is the midpoint of AB.

(i) Find the coordinates of M.

(..... , ...) [2]

(ii) Find the equation of the line that is perpendicular to AB and passes through M.
Give your answer in the form $y = mx + c$.

$y =$ ..... [4]

(b) The position vector of P is $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$ and the position vector of Q is $\begin{pmatrix} -2 \\ 5 \end{pmatrix}$.

(i) Find the vector $\overrightarrow{PQ}$.

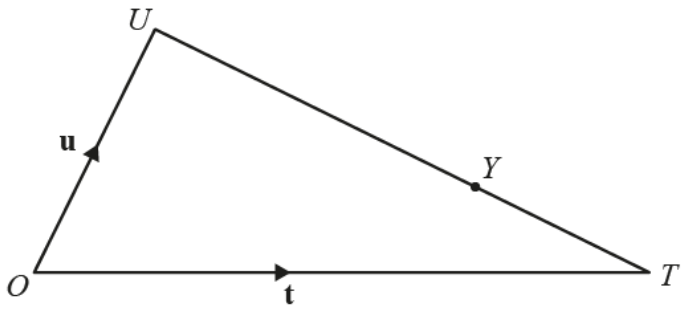
$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [2]

(ii) R is the point such that $\overrightarrow{PR} = 3\overrightarrow{PQ}$.

Find the position vector of R.

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [2]

(c)



NOT TO SCALE

$\overrightarrow{OT} = \mathbf{t}$, $\overrightarrow{OU} = \mathbf{u}$ and $UY = 2YT$.

(i) Find $\overrightarrow{OY}$ in terms of **t** and **u**.
Give your answer in its simplest form.

$\overrightarrow{OY}$ = ... [2]

(ii) Z is on OT and YZ is parallel to UO.

Find $\overrightarrow{OZ}$ in terms of **t** and/or **u**.
Give your answer in its simplest form.

$\overrightarrow{OZ}$ = ... [1]