



ACHIEVE ACADEMY

GCSE Maths — Higher Tier

Straight-Line Graphs · Practice Booklet

NAME: _____

CLASS: _____

DATE: _____

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Straight-Line Graphs

Total marks available: 93

● Straight-Line Graphs

Q1

[3 marks]

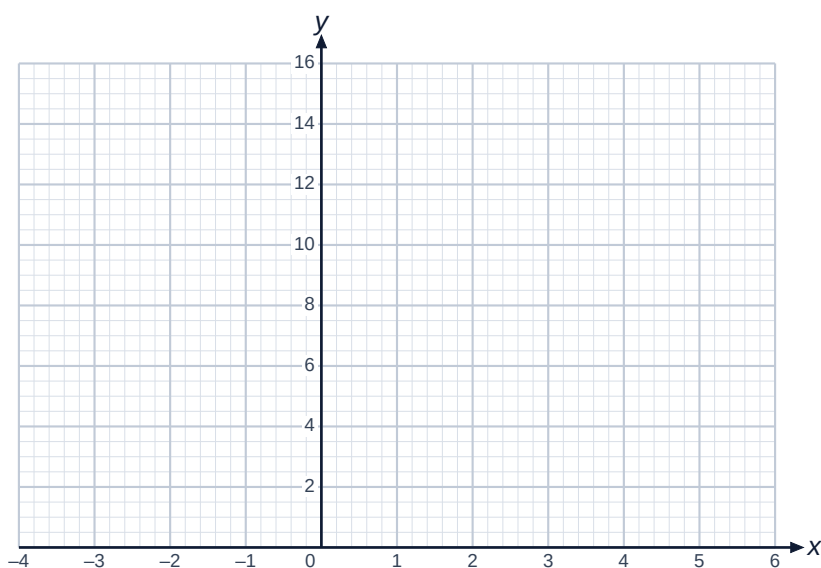
Find the equation of the line through $(-5, 9)$ and $(-7, 15)$.

Q2

[4 marks]

- (a) Complete the table of values for $3x + 2y = 18$.
 (b) On the grid, draw the graph of $3x + 2y = 18$ for values of x from -4 to 6 .

x	-4	-2	0	2	4	6
y		12	9			0



Q3

[2 marks]

Line L has equation $y = 2x + 3$.

Write down the gradient of a line that is perpendicular to L.

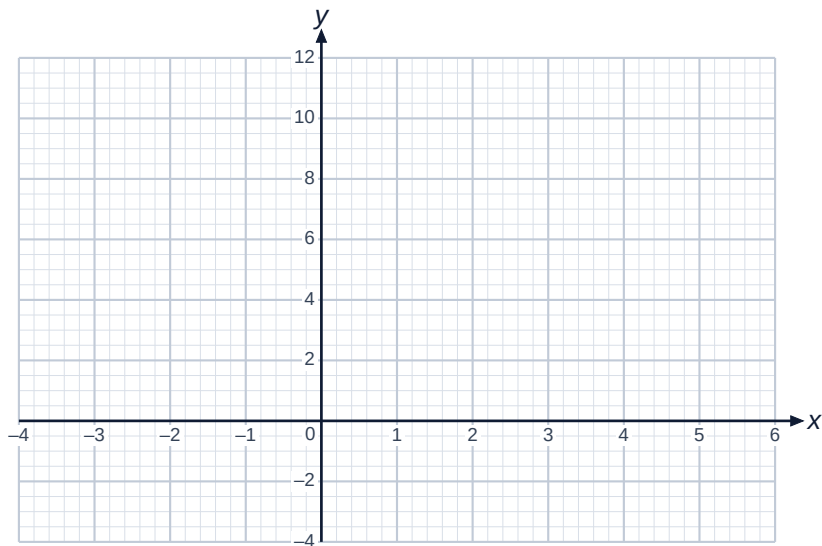
Q4

[4 marks]

(a) Complete the table of values for $3x + 2y = 12$.

(b) On the grid, draw the graph of $3x + 2y = 12$ for values of x from -4 to 6 .

x	-4	-2	0	2	4	6
y	12			3		-3



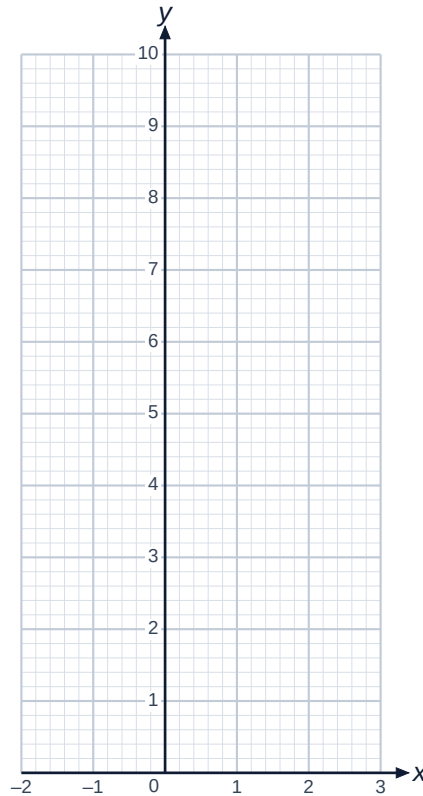
Q5

[4 marks]

(a) Complete the table of values for $y = 6 - 2x$.

(b) On the grid, draw the graph of $y = 6 - 2x$ for values of x from -2 to 3 .

x	-2	-1	0	1	2	3
y		8			2	0



Q6

[2 marks]

Line L has equation $y = \frac{4}{3}x - 2$.

Write down the gradient of a line that is perpendicular to L.

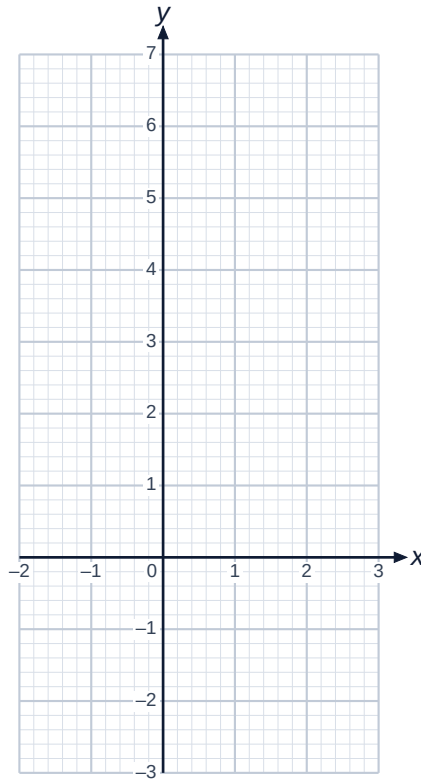
Q7

[4 marks]

(a) Complete the table of values for $y = 3 - 2x$.

(b) On the grid, draw the graph of $y = 3 - 2x$ for values of x from -2 to 3 .

x	-2	-1	0	1	2	3
y		5		1	-1	



Q8

[2 marks]

Line L has equation $y = \frac{1}{2}x + 5$.

Write down the gradient of a line that is perpendicular to L.

Q9

[3 marks]

Find the equation of the line through $(-2, -6)$ and $(-7, -16)$.

Q10

[3 marks]

Find the equation of the line through $(6, -22)$ and $(10, -30)$.

Q11

[3 marks]

Work out the length of the line segment joining $(5, -5)$ and $(11, -13)$.

Q12

[3 marks]

Line L has equation $y = -\frac{1}{2}x - 1$.

Find the equation of the line that is perpendicular to L and passes through $(0, 10)$.

Q13

[3 marks]

Line L has equation $y = -\frac{1}{3}x + 3$.

Find the equation of the line that is perpendicular to L and passes through $(-1, 3)$.

Q14

[3 marks]

Line L has equation $y = -\frac{1}{4}x + 2$.

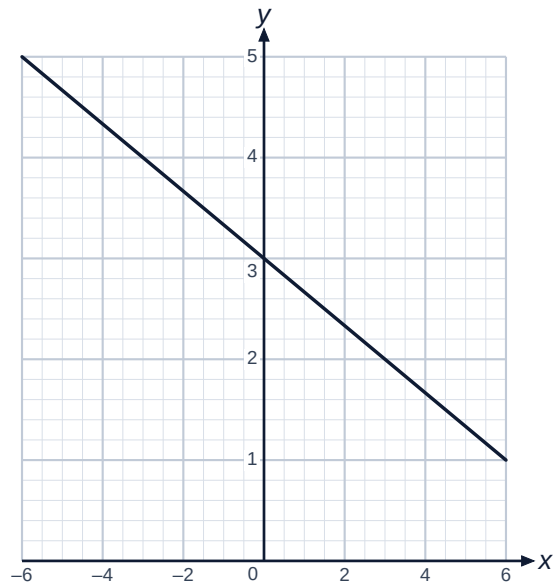
Find the equation of the line that is perpendicular to L and passes through $(4, -8)$.

Q15

[3 marks]

A straight line is drawn on the grid.

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

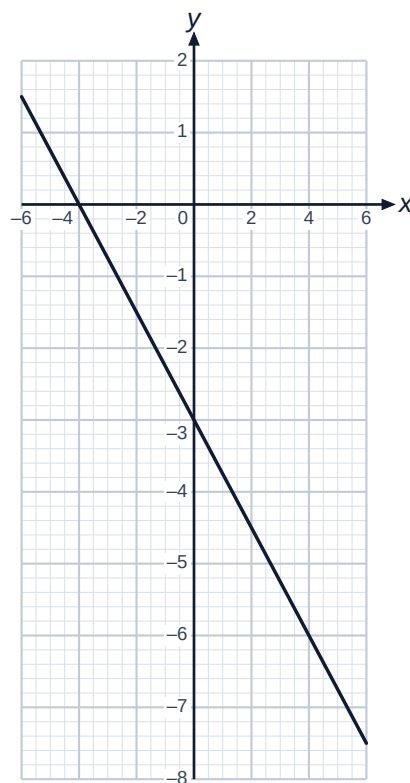


Q16

[3 marks]

A straight line is drawn on the grid.

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



Q17

[3 marks]

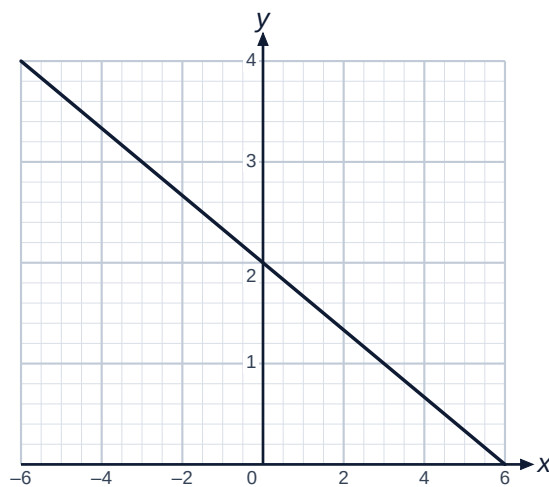
Work out the length of the line segment joining $(3, 1)$ and $(-3, 9)$.

Q18

[3 marks]

A straight line is drawn on the grid.

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

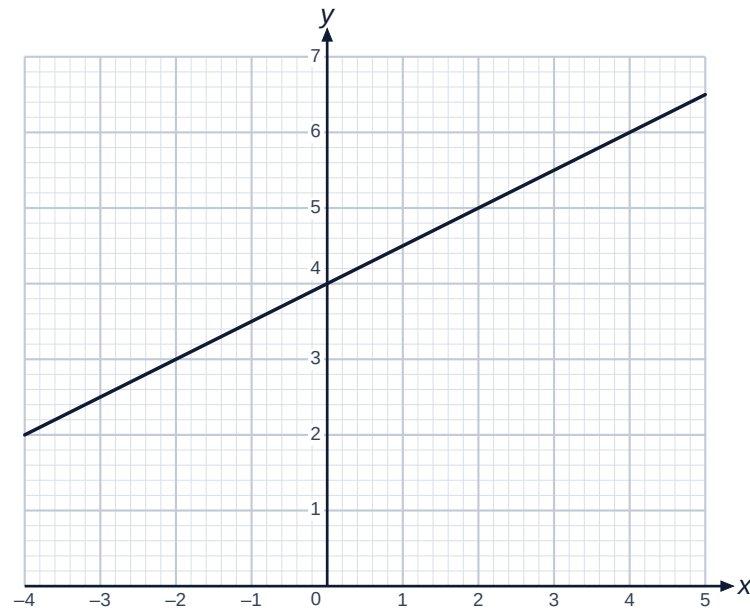


Q19

[3 marks]

A straight line is drawn on the grid.

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



Q20

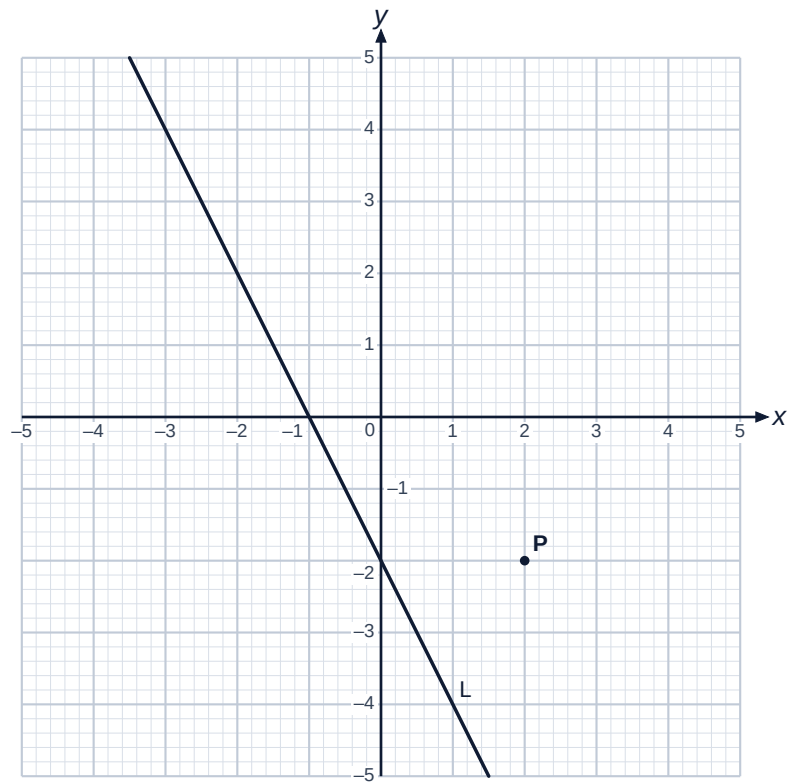
[3 marks]

Work out the length of the line segment joining $(-1, 3)$ and $(2, -1)$.

Q21

[4 marks]

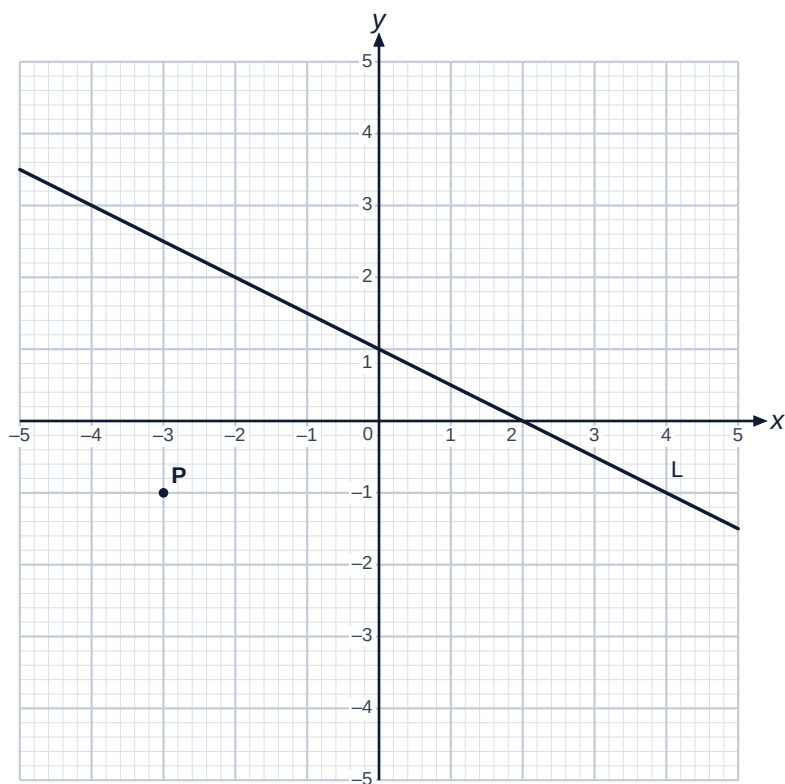
The line L and the point P are shown on the grid.
Find the equation of the straight line through P that is perpendicular to L.
Give your answer in the form $y = mx + c$.



Q22

[4 marks]

The line L and the point P are shown on the grid.
Find the equation of the straight line through P that is perpendicular to L.
Give your answer in the form $y = mx + c$.



Q23

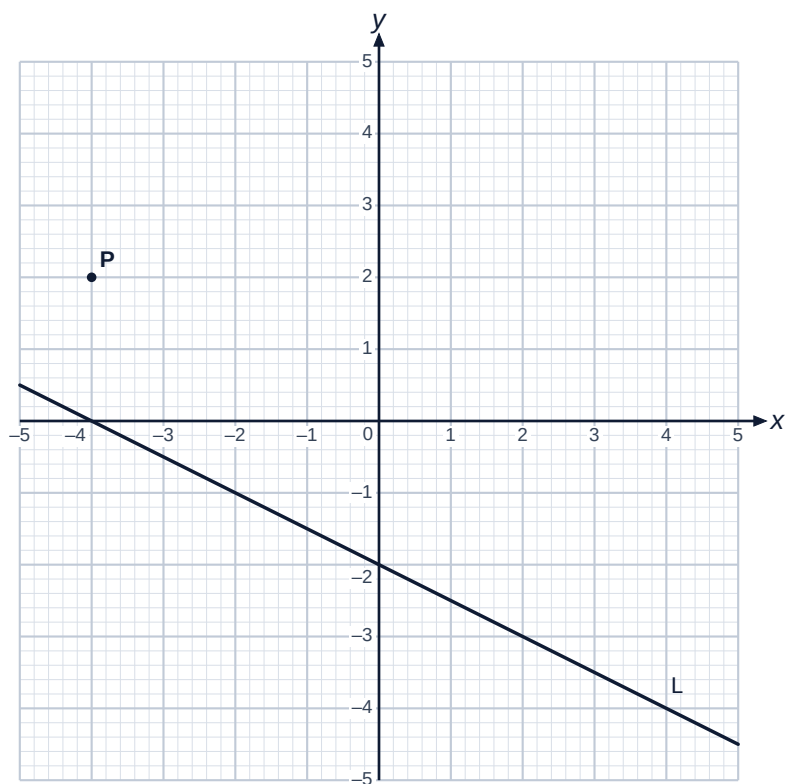
[3 marks]

Find the coordinates of the point where the lines $y = -2x + 13$ and $y = -x + 7$ intersect.

Q24

[4 marks]

The line L and the point P are shown on the grid.
Find the equation of the straight line through P that is perpendicular to L.
Give your answer in the form $y = mx + c$.



Q25

[2 marks]

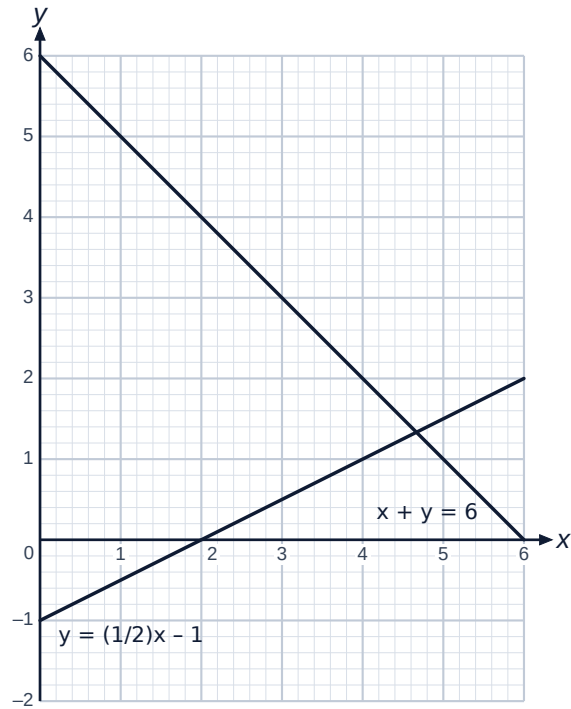
The lines $x + y = 6$ and $y = \frac{1}{2}x - 1$ are drawn on the grid.

Use the graph to estimate the solution of the simultaneous equations

$$x + y = 6$$

$$y = \frac{1}{2}x - 1$$

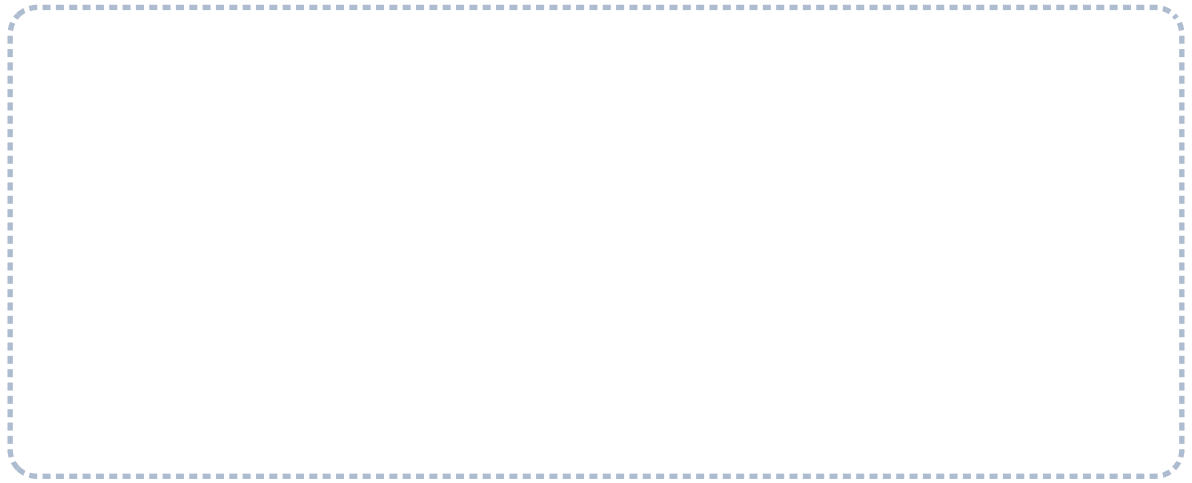
Give your values to 1 decimal place.



Q26

[4 marks]

A is the point $(-2, 0)$ and B is the point $(4, -2)$.
Find the equation of the perpendicular bisector of AB.



Q27

[2 marks]

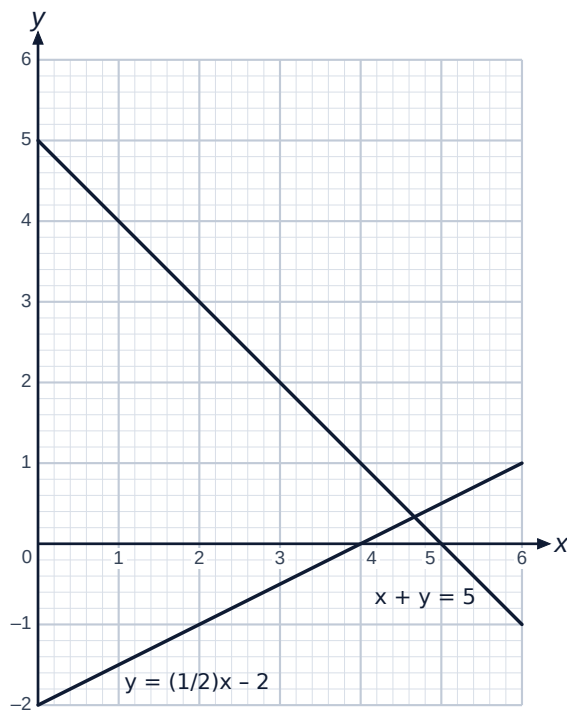
The lines $x + y = 5$ and $y = \frac{1}{2}x - 2$ are drawn on the grid.

Use the graph to estimate the solution of the simultaneous equations

$$x + y = 5$$

$$y = \frac{1}{2}x - 2$$

Give your values to 1 decimal place.



Q28

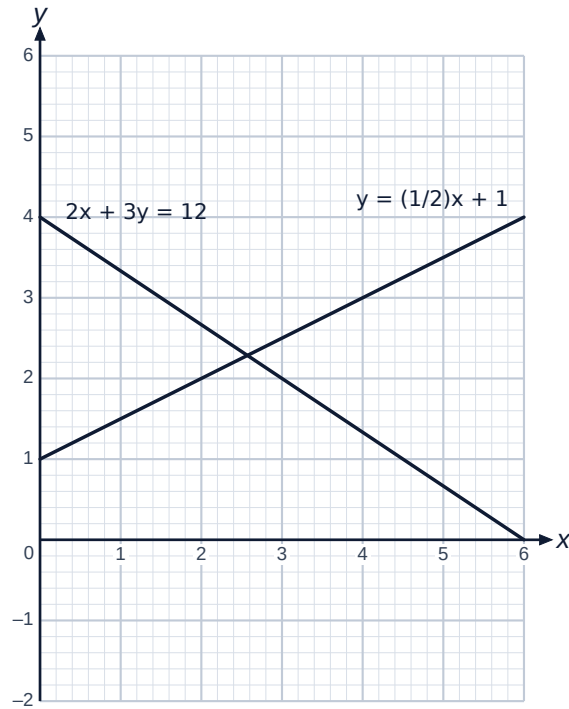
[2 marks]

The lines $2x + 3y = 12$ and $y = \frac{1}{2}x + 1$ are drawn on the grid.
Use the graph to estimate the solution of the simultaneous equations

$$2x + 3y = 12$$

$$y = \frac{1}{2}x + 1$$

Give your values to 1 decimal place.



Q29

[3 marks]

Find the coordinates of the point where the lines $y = -4x + 20$ and $y = 3x - 1$ intersect.

Q30

[4 marks]

A is the point $(-3, 1)$ and B is the point $(1, 3)$.
Find the equation of the perpendicular bisector of AB.