



# Equation of a Line

← REVISE THIS TOPIC

1 (a) Write down the coordinates of the  $y$ -intercept of the line  $y = 2x - 3$  [1 mark]

Answer ( 0 , -3 )

1 (b) Write down the gradient of the line  $y = 2x - 3$  [1 mark]

Answer 2

2 (a) Write down the coordinates of the  $y$ -intercept of the line  $y = 8 - 5x$  [1 mark]

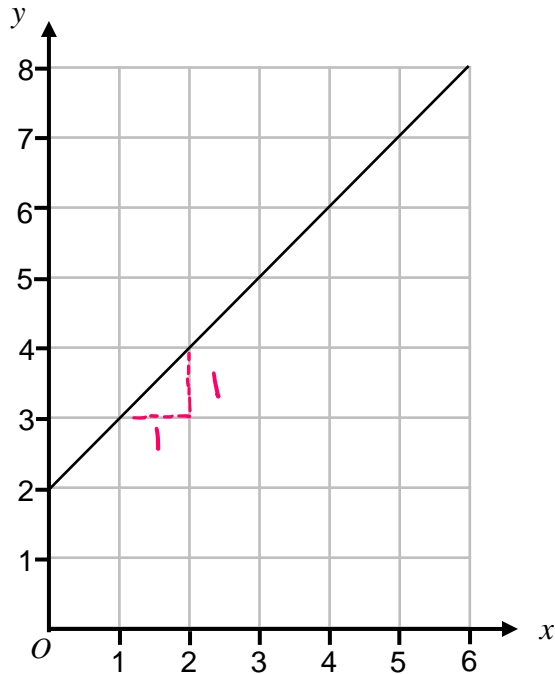
Answer ( 0 , 8 )

2 (b) Write down the gradient of the line  $y = 8 - 5x$  [1 mark]

Answer -5



3 Here is a straight line graph.



3 (a) Write down the coordinates of the y-intercept

[1 mark]

Answer ( 0 , 2 )

3 (b) Work the gradient of the line.

[2 marks]

1

Answer 1

3 (c) Use your answers to parts (a) and (b) to write down the equation of the line.

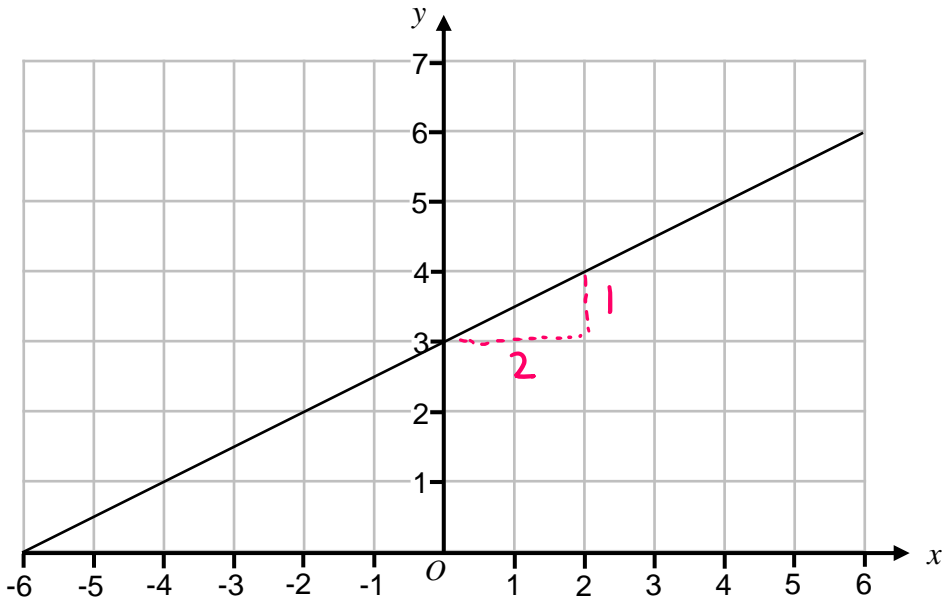
[1 mark]

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

Answer  $y = x + 2$



4 Here is a straight line graph.



4 (a) Write down the coordinates of the y-intercept [1 mark]

Answer ( 0 , 3 )

4 (b) Work the gradient of the line. [2 marks]

$$\frac{1}{2}$$

Answer 0.5 (or  $\frac{1}{2}$ )

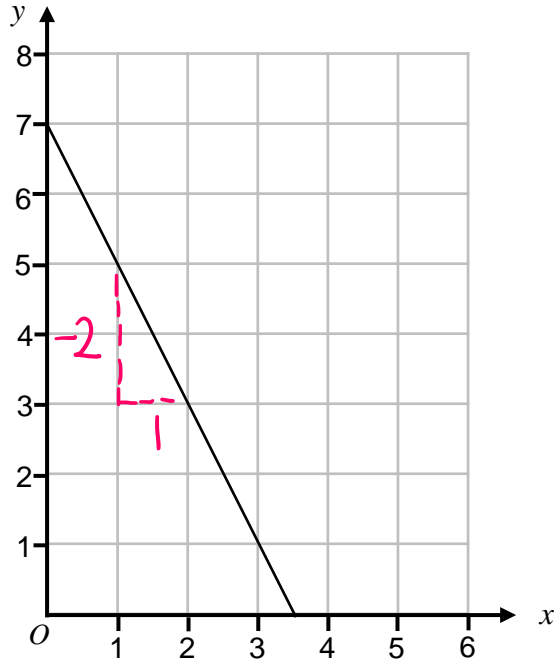
4 (c) Use your answers to parts (a) and (b) to write down the equation of the line. [1 mark]

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

Answer  $y = 0.5x + 3$



5 Here is a straight line graph.



5 (a) Write down the coordinates of the  $y$ -intercept [1 mark]

Answer ( 0 , 7 )

5 (b) Work the gradient of the line. [2 marks]

$$\frac{-2}{1}$$

Answer                   -2                  

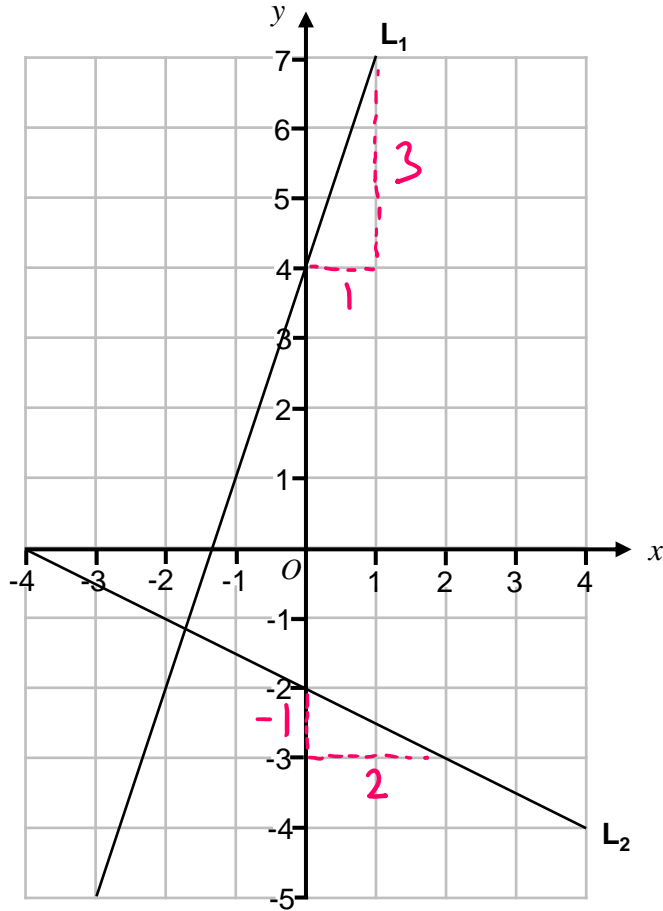
5 (c) Use your answers to parts (a) and (b) to write down the equation of the line. [1 mark]

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

Answer                    $y = -2x + 7$                   



6 The lines  $L_1$  and  $L_2$  are shown on the grid.



6 (a) Work out the equation of line  $L_1$

[3 marks]

$$\frac{3}{1} = 3$$

Answer  $y = 3x + 4$

6 (b) Work out the equation of line  $L_2$

[3 marks]

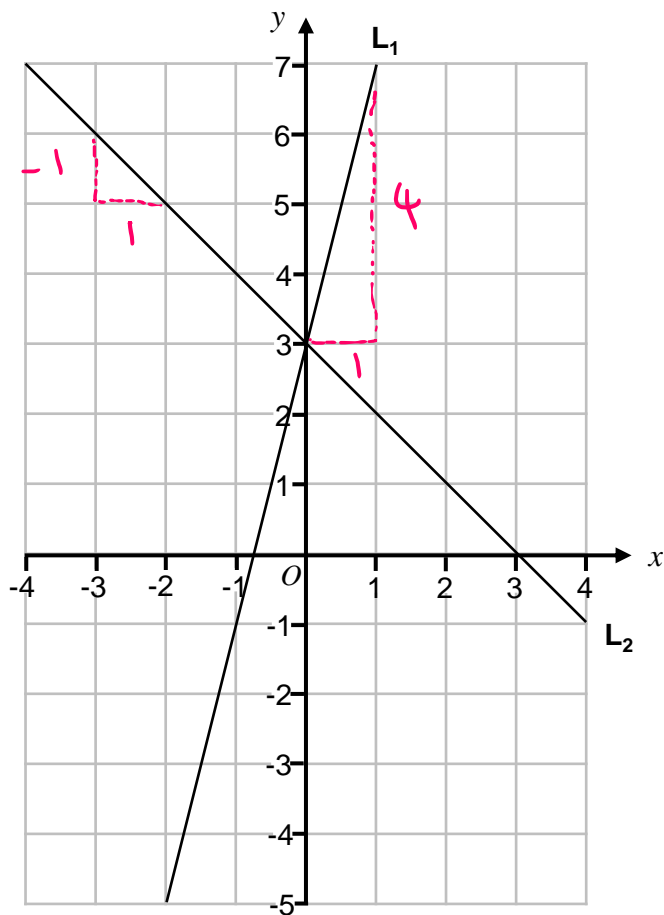
$$-\frac{1}{2} = -0.5$$

Answer  $y = -0.5x - 2$



Turn over ►

7 The lines  $L_1$  and  $L_2$  are shown on the grid.



7 (a) Work out the equation of line  $L_1$

[3 marks]

$$\frac{4}{1} = 4$$

Answer

$$y = 4x + 3$$

7 (b) Work out the equation of line  $L_2$

[3 marks]

$$\frac{-1}{1} = -1$$

Answer

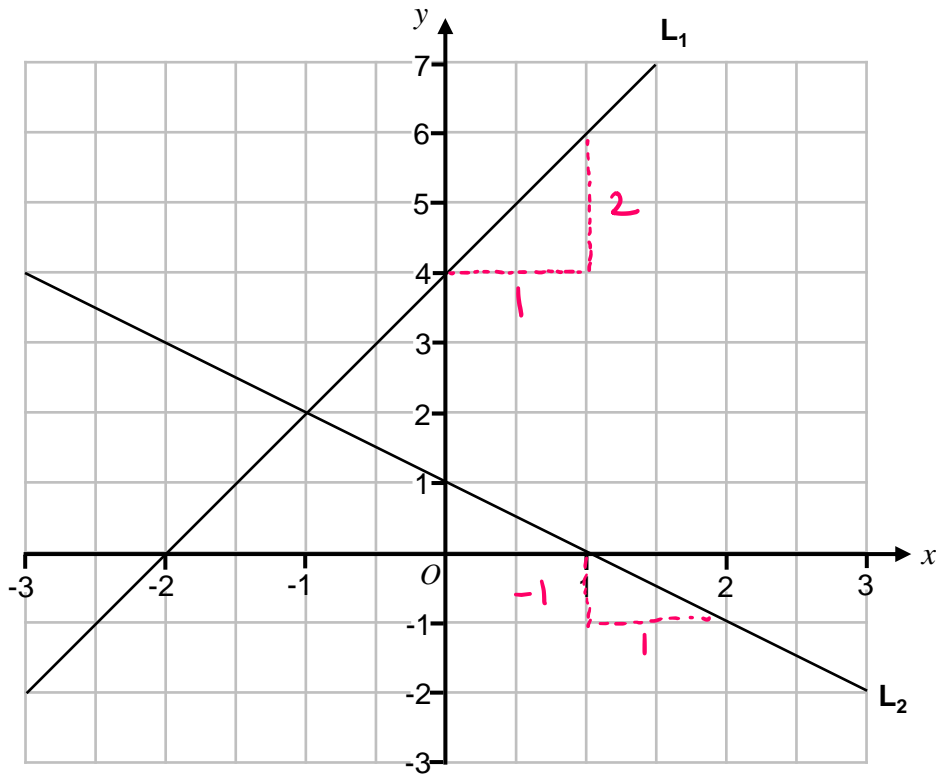
$$y = -x + 3$$



Turn over ►



8 The lines  $L_1$  and  $L_2$  are shown on the grid.



8 (a) Work out the equation of line  $L_1$  [3 marks]

$$\frac{2}{1} = 2$$

Answer  $y = 2x + 4$

8 (b) Work out the equation of line  $L_2$  [3 marks]

$$\frac{-1}{1} = -1$$

Answer  $y = -x + 1$



Turn over ►



9 (a) Write down the coordinates of the y-intercept of the line  $2y = 5x + 6$  [1 mark]

$$y = 2.5x + 3$$

Answer ( 0 , 3 )

9 (b) Write down the gradient of the line  $2y = 5x + 6$  [1 mark]

Answer 2.5

9 (c) Is the point <sup>xy</sup>(2, 8) on the line  $2y = 5x + 6$  ?

You **must** show your working.

[2 marks]

$$2 \times 8 = 16$$
$$5 \times 2 + 6 = 16$$

Yes

10 (a) Write down the coordinates of the y-intercept of the line  $y - 3x = 10$  [1 mark]

$$y = 10 + 3x$$

Answer ( 0 , 10 )

10 (b) Write down the gradient of the line  $y - 3x = 10$  [1 mark]

Answer 3

10 (c) Is the point <sup>xy</sup>(4, -2) on the line  $y - 3x = 10$

You **must** show your working.

[2 marks]

$$-2 - 3 \times 4 = -2 - 12$$
$$= -14 \text{ not } 10$$

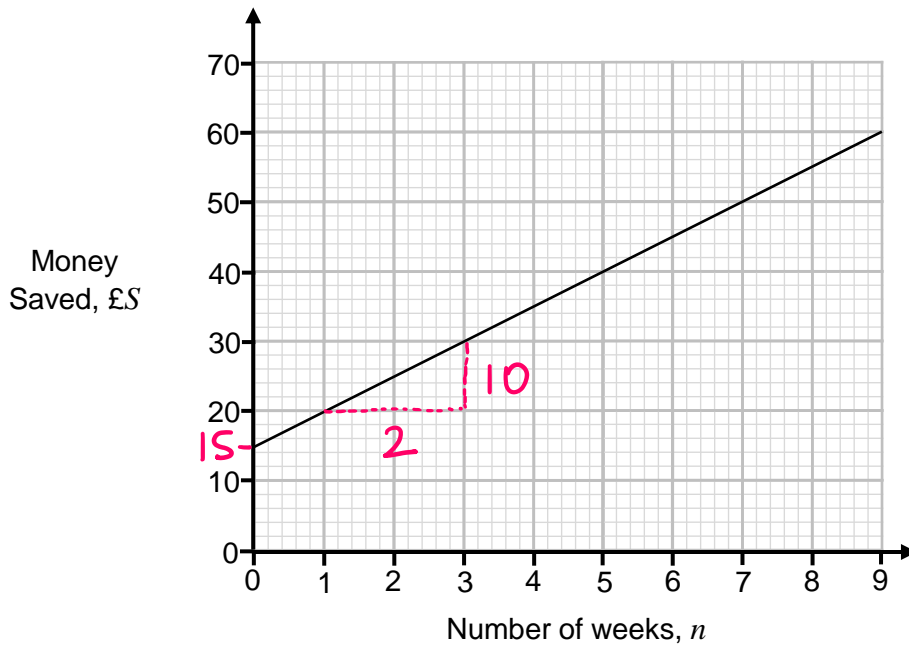
NO







11 The graph shows the amount of money saved by a student.



Work out a formula for  $S$  in terms of  $n$ .

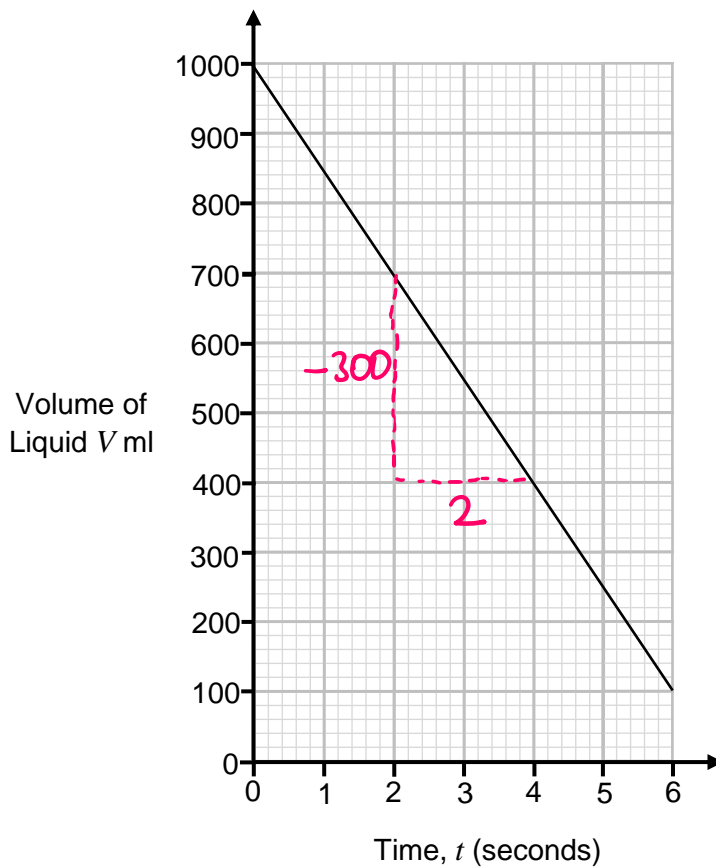
[3 marks]

$$\frac{10}{2} = 5$$

Answer  $S = 5n + 15$



12 The graph shows the amount liquid in a container.



Work out a formula for  $V$  in terms of  $t$ .

[3 marks]

$$\frac{-300}{2} = -150$$

Answer  $V = -150t + 1000$





13

Work out the gradient of the straight line through (2, 8) and (5, 20) [2 marks]

$$\frac{20-8}{5-2} = \frac{12}{3} = 4$$

Answer 4

14

Work out the gradient of the straight line through (2, 10) and (6, 8) [2 marks]

$$\frac{8-10}{6-2} = \frac{-2}{4} = -\frac{1}{2}$$

Answer -0.5

15

A straight line

has gradient 4  
and  $x y$   
passes through the point (3, 10)

Work out the equation of the line.

Give your answer in the form  $y = mx + c$  [3 marks]

$$y = 4x + c$$

$$10 = 4 \times 3 + c$$

$$10 = 12 + c$$

$$c = -2$$

Answer  $y = 4x - 2$



## 16 A straight line

has gradient -2  
and  
passes through the point (10, -17)

Work out the equation of the line.

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

[3 marks]

$$y = -2x + c$$

$$-17 = -2 \times 10 + c$$

$$-17 = -20 + c$$

$$c = 3$$

Answer  $y = -2x + 3$

## 17 A straight line

has gradient 0.5  
and  
passes through the point (8, -3)

Work out the equation of the line.

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

[3 marks]

$$y = 0.5x + c$$

$$-3 = 0.5 \times 8 + c$$

$$-3 = 4 + c$$

$$c = -7$$

Answer  $y = 0.5x - 7$



18

Work out the equation of the straight line through (3, 5) and (6, 11)

[4 marks]

$$\frac{11-5}{6-3} = \frac{6}{3} = 2$$

$$\begin{aligned}y &= 2x + c \\5 &= 2 \times 3 + c \\5 &= 6 + c \\c &= -1\end{aligned}$$

Answer

$$y = 2x - 1$$

19

Work out the equation of the straight line through (-4, 2) and (2, 5)

[4 marks]

$$\frac{5-2}{2-(-4)} = \frac{3}{6} = \frac{1}{2}$$

$$\begin{aligned}y &= 0.5x + c \\5 &= 0.5 \times 2 + c \\5 &= 1 + c \\c &= 4\end{aligned}$$

Answer

$$y = 0.5x + 4$$

20

Work out the equation of the straight line through (3, 16) and (8, 1)

[4 marks]

$$\frac{1-16}{8-3} = \frac{-15}{5} = -3$$

$$\begin{aligned}y &= -3x + c \\16 &= -3 \times 3 + c \\16 &= -9 + c \\c &= 25\end{aligned}$$

Answer

$$y = -3x + 25$$

