Equation of a Line

SCAN ME

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

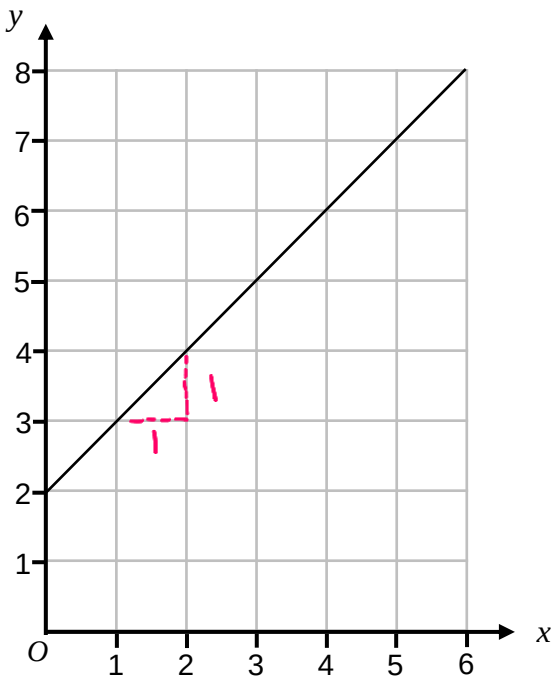
2 (a) Write down the coordinates of the y-intercept of the line $y = 8 - 5x$ **[1 mark]**

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]**

$\frac{1}{1}$

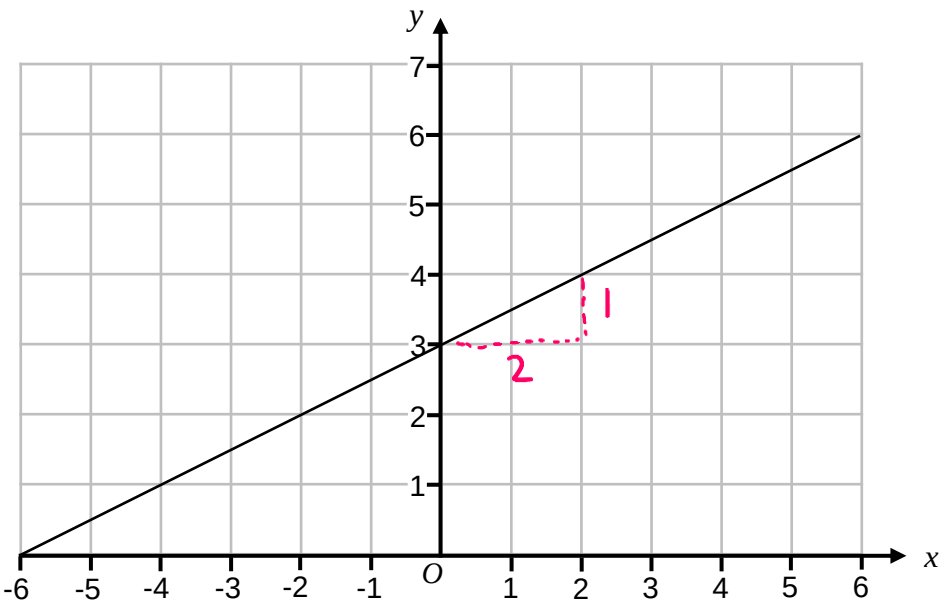
Answer 1

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]**

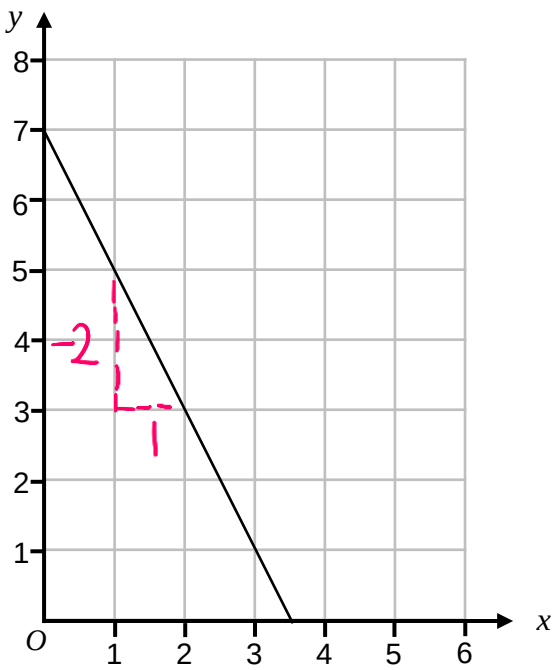
Give your answer in the form $y = mx + c$

Answer $y = 0.5x + 3$

8

Turn over ▶

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]**

$\frac{-2}{1}$

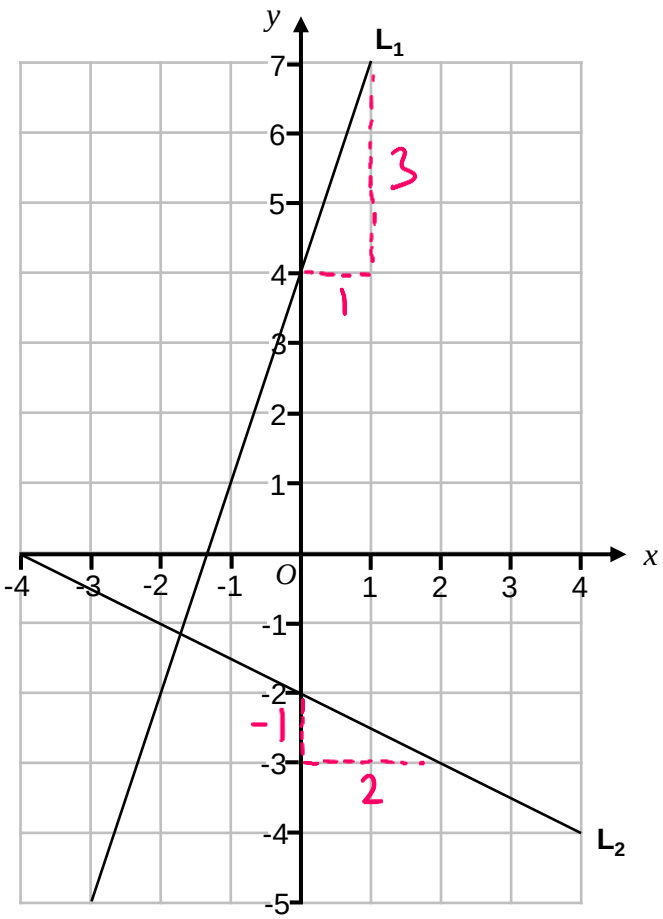
Answer -2

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]**

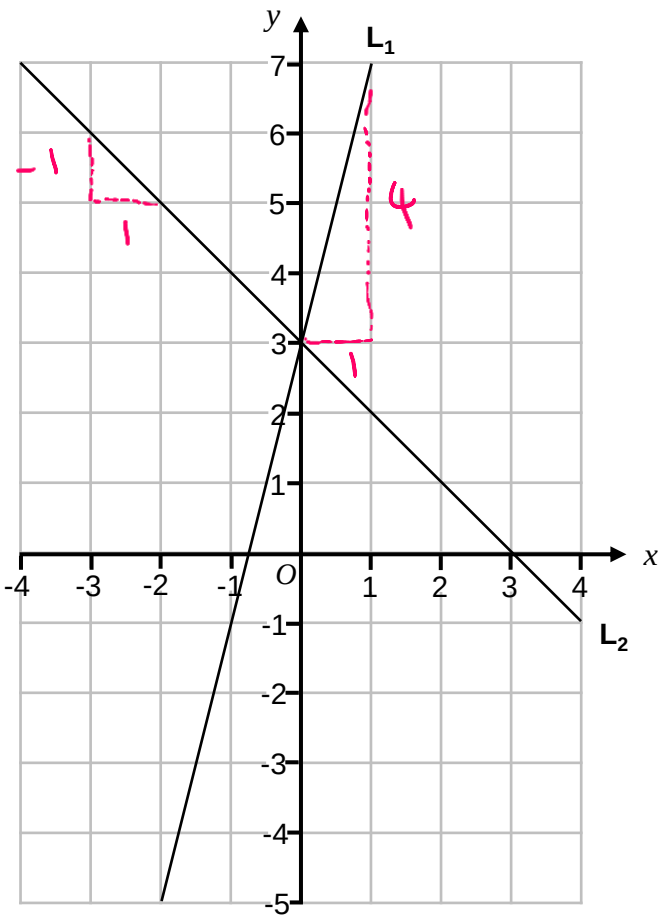
$\frac{-1}{2} = -0.5$

Answer $y = -0.5x - 2$

10

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 $y = 4x + 3$

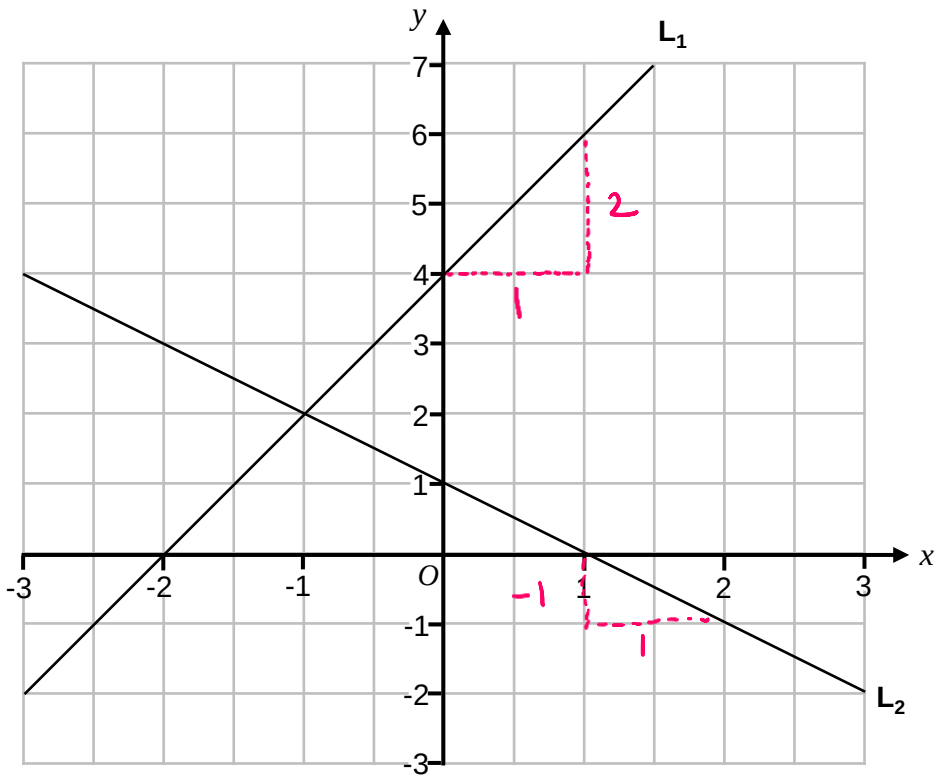
7 (b) Work out the equation of line L_2 **[3 marks]**

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

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 $y = -x + 1$

12

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 (2, 8) on the line $2y = 5x + 6$?

x y

You **must** show your working. **[2 marks]**

$2 \times 8 = 16$ Yes

$5 \times 2 + 6 = 16$

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 (4, -2) on the line $y - 3x = 10$

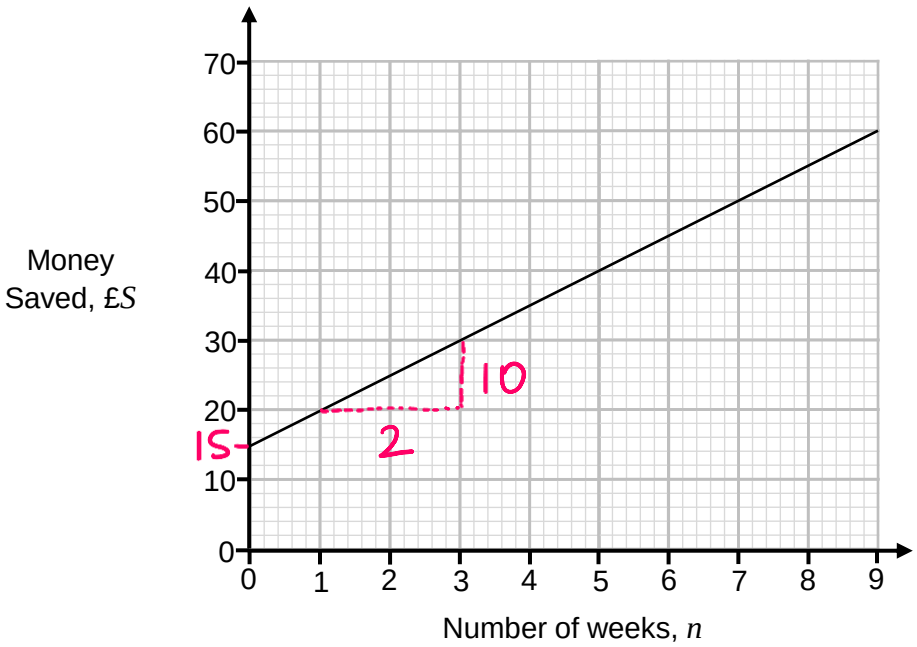
x y

You **must** show your working. **[2 marks]**

$-2 - 3 \times 4 = -2 - 12$

$= -14$ 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]**

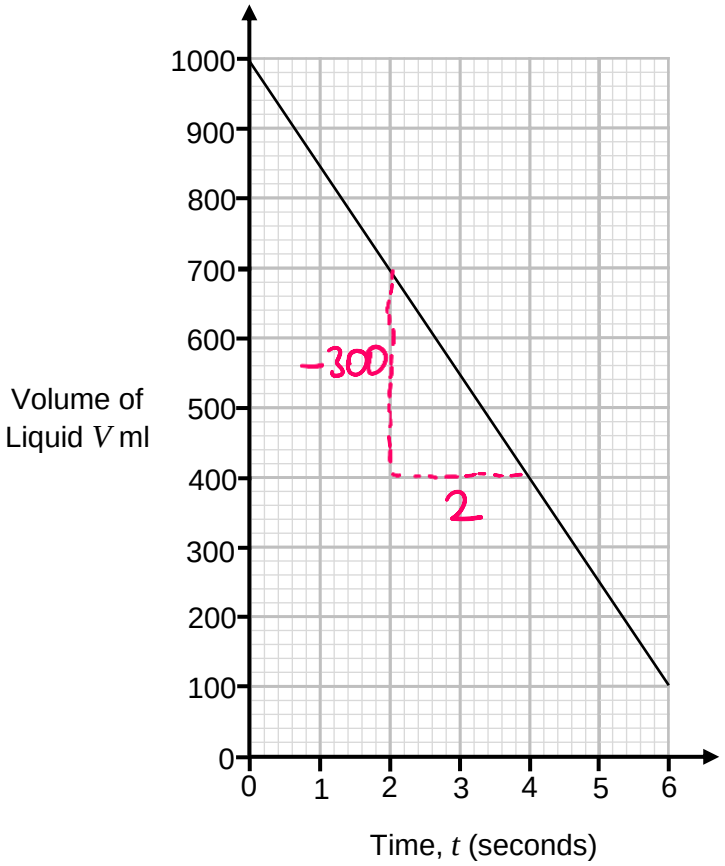
$\frac{10}{2} = 5$

Answer $S = 5n + 15$

11

Turn over ►

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]**

$x_1\ y_1 \quad x_2\ y_2$

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

Answer 4

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

$x_1\ y_1 \quad x_2\ y_2$

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

Answer -0.5

15 A straight line

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

$x\ y$

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 $y = 4x - 2$

10

Turn over ►

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]**

$x_1 y_1 \quad x_2 y_2$

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

$y = 2x + c$

$5 = 2 \times 3 + c$

$5 = 6 + c$

$c = -1$

Answer $y = 2x - 1$

19 Work out the equation of the straight line through (-4, 2) and (2, 5) **[4 marks]**

$x_1 y_1 \quad x_2 y_2$

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

$y = 0.5x + c$

$5 = 0.5 \times 2 + c$

$5 = 1 + c$

$c = 4$

Answer $y = 0.5x + 4$

20 Work out the equation of the straight line through (3, 16) and (8, 1) **[4 marks]**

$x_1 y_1 \quad x_2 y_2$

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

$y = -3x + c$

$16 = -3 \times 3 + c$

$16 = -9 + c$

$c = 25$

Answer $y = -3x + 25$

18