

GCSE Maths: Finding the equation of a straight line (Higher): worksheet

GCSE Maths - Straight-Line Graphs and Coordinates - Higher - Lesson 12.6

Name: _____

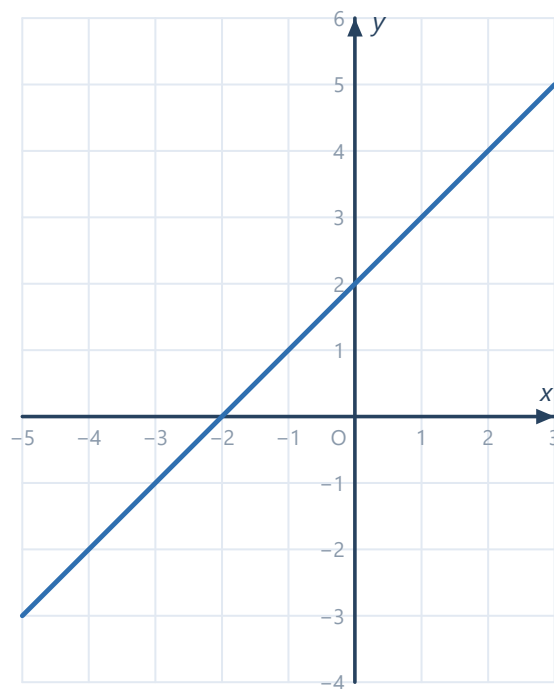
Date: _____

Score: _____

23 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch12-straight-line-graphs-coordinates/higher/finding-the-equation-of-a-straight-line/

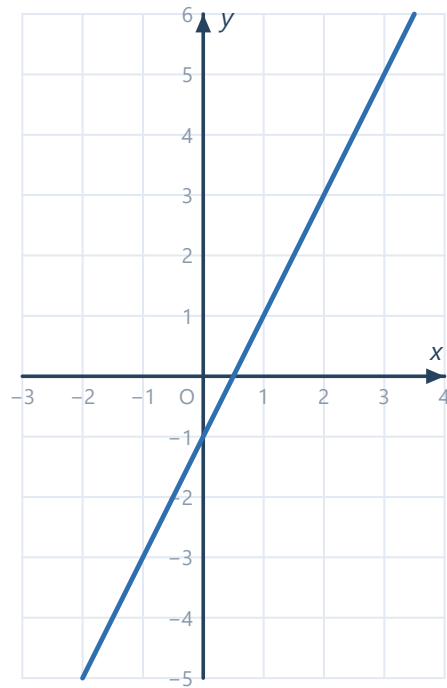
Exercise 12G Equations of lines from graphs Non-calculator

- 1 Find the equation of the line.



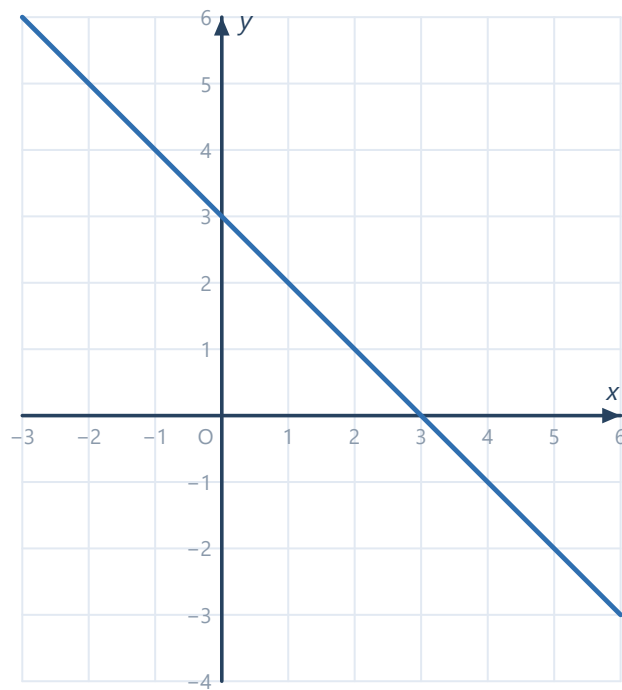
Answer:

- 2 Find the equation of the line.



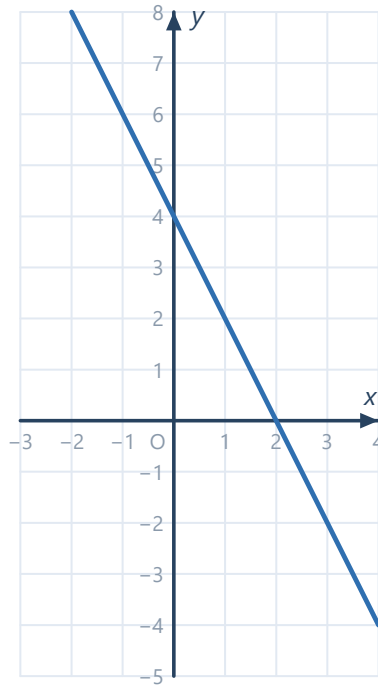
Answer:

3 Find the equation of the line.



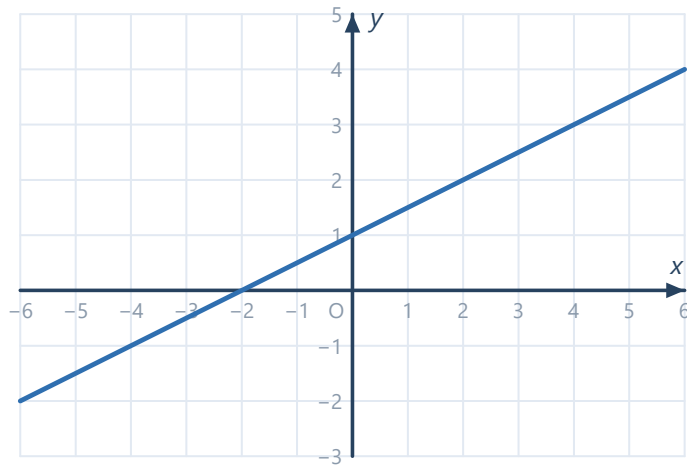
Answer:

4 Find the equation of the line.



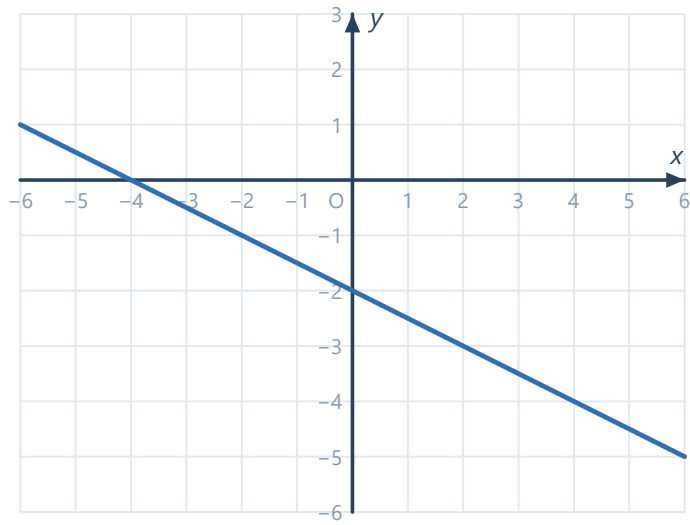
Answer:

5 Find the equation of the line.



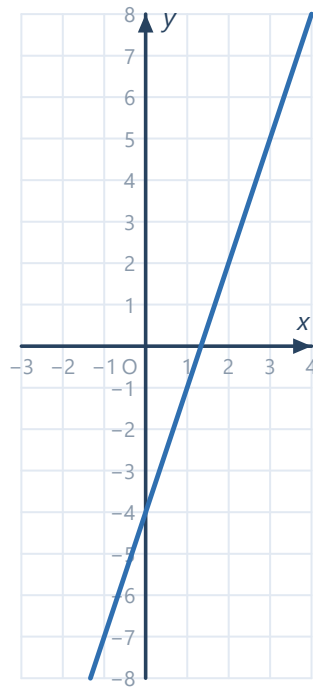
Answer:

6 Find the equation of the line.



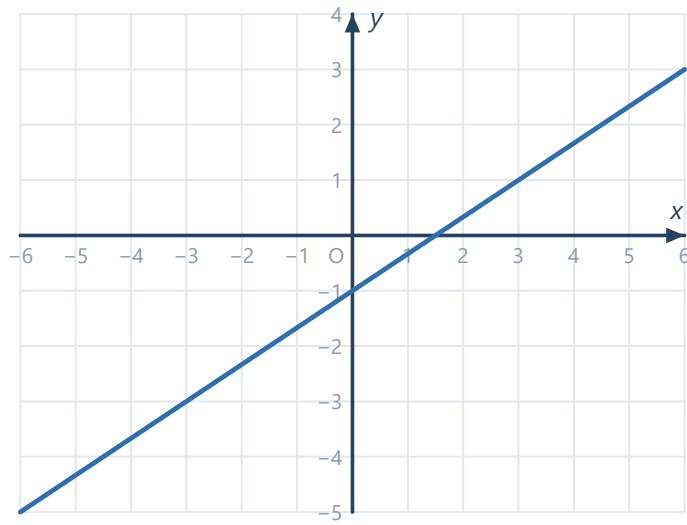
Answer:

7 Find the equation of the line.



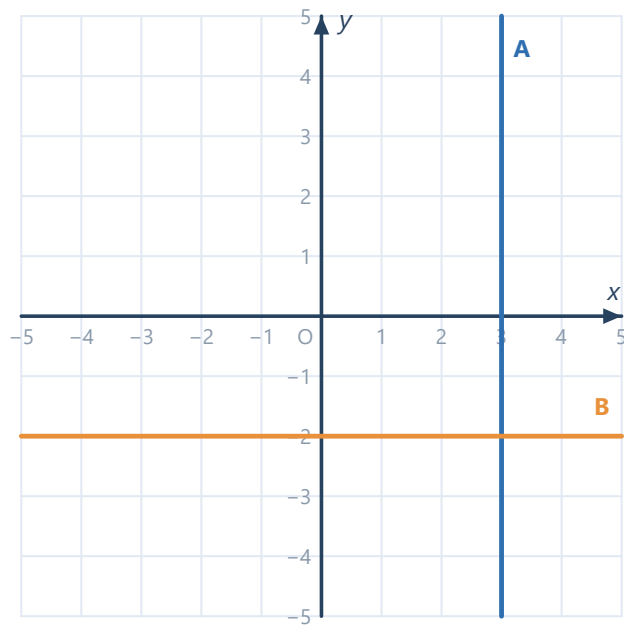
Answer:

8 Find the equation of the line.



Answer:

- 9 Write down the equations of the two lines A and B.



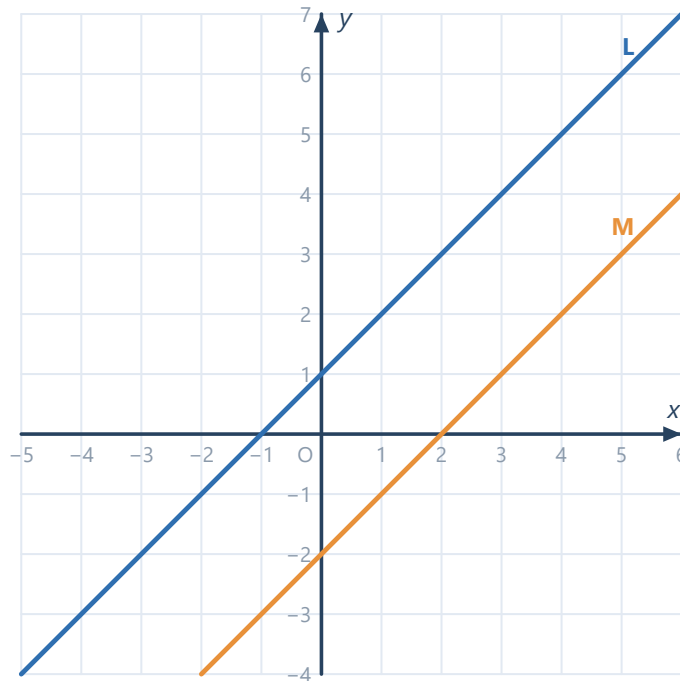
- (a) line A

Answer:

- (b) line B

Answer:

- 10 The grid shows two lines, L and M.



(a) Find the equation of line L.

Answer:

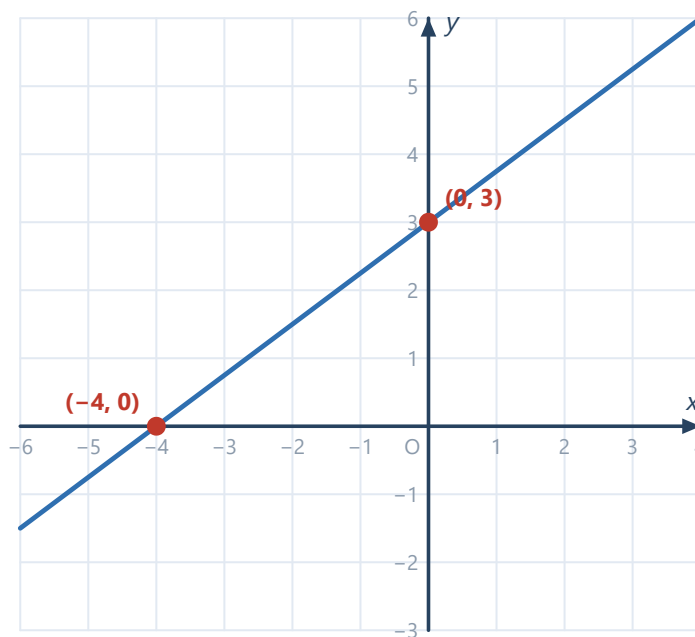
(b) Find the equation of line M.

Answer:

(c) What do you notice about the two equations? What does this tell you about the lines?

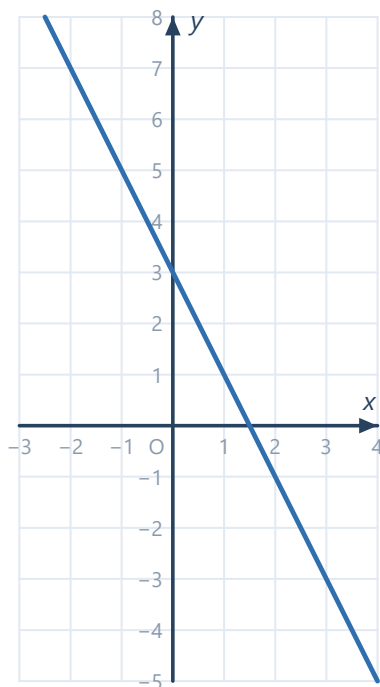
Answer:

11 A line crosses the x-axis at $(-4, 0)$ and the y-axis at $(0, 3)$. Find the equation of the line.



Answer:

12 The line in the diagram is the boundary of a fence on a map. Write down its equation in the form $y = mx + c$.



Answer:

- 13** A line passes through (0, 3) and (4, -1). Without calculating, explain how you can tell the gradient is negative.

Answer:

Exercise 12H Equations of lines from points and gradients Non-calculator

- 1** Find the equation of the line with the given gradient that passes through the given point.

- (a) gradient 2, point (1, 5)

Answer:

- (b) gradient -1, point (3, 4)

Answer:

- (c) gradient 3, point (-2, -1)

Answer:

- (d) gradient $\frac{1}{2}$, point (4, 3)

Answer:

- 2** Find the equation of the line through each pair of points.

- (a) (0, 1) and (2, 5)

Answer:

- (b) (1, 2) and (3, 8)

Answer:

- (c) (0, 5) and (5, 0)

Answer:

(d) $(-1, -3)$ and $(3, 5)$

Answer: _____

3 Find the equation of the line through each pair of points. The gradient may be a fraction.

(a) $(2, 1)$ and $(6, 3)$

Answer: _____

(b) $(-3, -2)$ and $(3, 2)$

Answer: _____

(c) $(0, -3)$ and $(6, 1)$

Answer: _____

(d) $(-2, 4)$ and $(4, -5)$

Answer: _____

4 A line passes through $(1, 1)$ and $(3, 5)$. Does it pass through the point $(5, 9)$? Show your working.

Answer: _____

5 A line passes through $(-1, -7)$ and $(3, 5)$. Find its equation and then the value of y when $x = 10$.

Answer: _____

6 Pete finds the equation of the line through $(1, 3)$ and $(3, 7)$. He gets $m = 2$ and writes $y = 2x + 3$. Show that he is wrong and find the correct equation.

Answer: _____

7 A line has gradient -2 and passes through $(4, 3)$. Find the coordinates of the point where the line crosses the x -axis.

Answer: _____

8 Find the equation of the line through each pair of points.

(a) $(2, -1)$ and $(6, -1)$

Answer: _____

(b) $(3, 2)$ and $(3, 7)$

Answer: _____

9 Show that the points $A(-1, -3)$, $B(2, 3)$ and $C(4, 7)$ lie on a straight line, and find the equation of the line.

Answer: _____

10 The line $y = mx + c$ passes through $(1, 5)$ and $(3, 11)$. Write down two equations in m and c and use them to find m and c .

Answer: _____