Straight Lines - Lesson 5

Drawing a Straight Line Graph from its Equation

LI

- Know the general equation of a straight line ($y = mx + c$).
- Draw the graph of a straight line.

SC

- Putting numbers into expressions.
- Plotting coordinates.

Equation of a straight line :

$y = mx + c$

Gradient

y - intercept
(where it crosses the y-axis)

To draw a straight line graph,
we need 2 points on the line.

A straight line graph goes on forever.

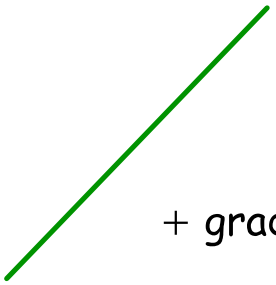
Types of Straight Line Graphs

$y = x + 3$

$y = 2x - 7$

$y = x$

$y = 5x$



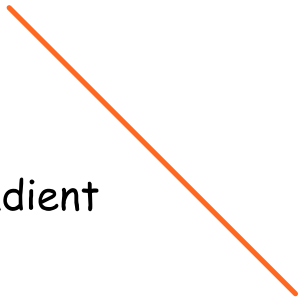
+ gradient

$y = -3x$

$y = 4 - x$

$y = -6x + 3$

$y = 2 - 5x$



− gradient

Less Common Types

$y = 4$

$y = -9$

0 gradient

$x = 2$

$x = -5$

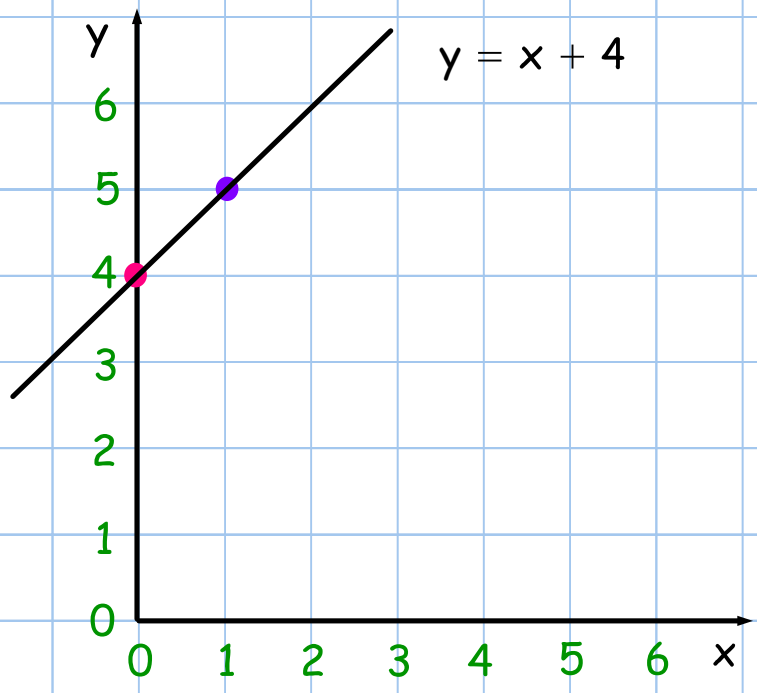
infinite gradient

Example 1

Draw the graph of $y = x + 4$.

$x = 0: \quad y = 0 + 4 = 4$ $\quad (0, 4)$

$x = 1: \quad y = 1 + 4 = 5$ $\quad (1, 5)$



What is the gradient ?

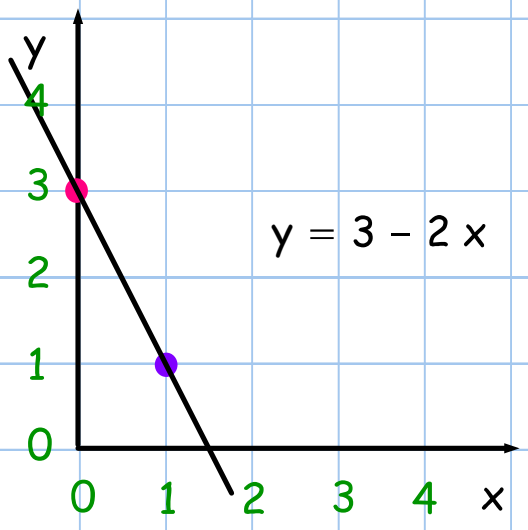
What is the y - intercept ?

Example 2

Draw the graph of $y = 3 - 2x$.

$x = 0$: $y = 3 - 2 \times 0 = 3$ (0, 3)

$x = 1$: $y = 3 - 2 \times 1 = 1$ (1, 1)



What is the gradient ?

What is the y - intercept ?

Draw the graphs of these straight lines.

Write down the gradient and y - intercept of each line.

1) $y = x + 3$

2) $y = x - 2$

3) $y = x + 7$

4) $y = 8 - x$

5) $y = 6x$

6) $y = 9 - 2x$

7) $y = x$

8) $y = 20 - 10x$

9) $y = 0.5x + 2$

10) $y = 8x - 0.5$

11) $y = 0.5x - 1$

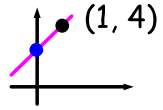
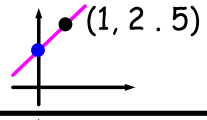
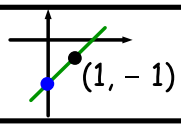
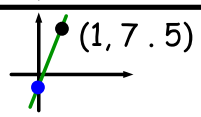
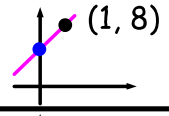
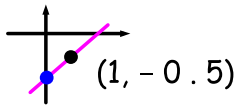
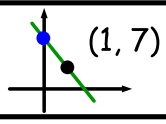
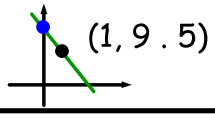
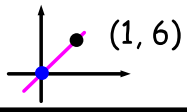
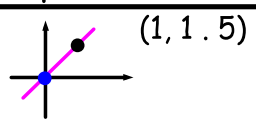
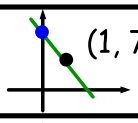
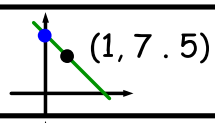
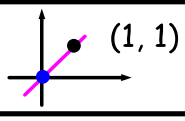
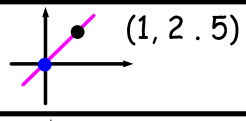
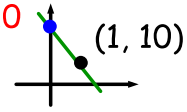
12) $y = 10 - 0.5x$

13) $y = 1.5x$

14) $y = 9 - 1.5x$

15) $y = 2.5x$

16) $y = 20 - 2.5x$

m = 1 1) y = x + 3 c = 3 	m = 0 . 5 9) y = 0 . 5 x + 2 c = 2 
m = 1 2) y = x − 2 c = − 2 	m = 8 10) y = 8 x − 0 . 5 c = − 0 . 5 
m = 1 3) y = x + 7 c = 7 	m = 0 . 5 11) y = 0 . 5 x − 1 c = − 1 
m = − 1 4) y = 8 − x c = 8 	m = − 0 . 5 12) y = 10 − 0 . 5 x c = 10 
m = 6 5) y = 6 x c = 0 	m = 1 . 5 13) y = 1 . 5 x c = 0 
m = − 2 6) y = 9 − 2 x c = 9 	m = − 1 . 5 14) y = 9 − 1 . 5 x c = 9 
m = 1 7) y = x c = 0 	m = 2 . 5 15) y = 2 . 5 x c = 0 
m = − 10 8) y = 20 − 10 x c = 20 	m = − 2 . 5 16) y = 20 − 2 . 5 x c = 20