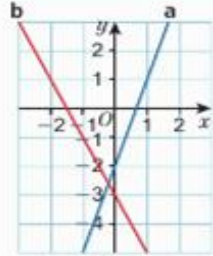


GRAPHS: Straight Line Graphs

A **linear equation** produces a straight line graph. The equation of a straight line is $y = mx + c$, where m is the gradient and c is the y -intercept.

Example 4

Write the equation of each line.



a $y = mx + c$

$m = 3$

Work out the gradient, m .

$c = -2$

The line crosses the y -axis at -2 .

Equation of line is $y = 3x - 2$

Substitute $m = 3$ and $c = -2$ into $y = mx + c$

b $y = mx + c$

$m = -2$

This line slopes down so its gradient is negative.

$c = -3$

Equation of line is $y = -2x - 3$

a Complete this table of values for the equation $y = 3x + 2$

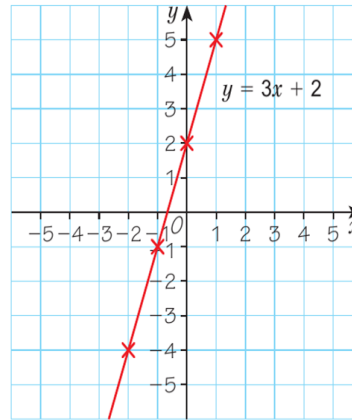
x	-2	-1	0	1
$y = 3x + 2$	-4	-1	2	5

When $x = -2$, $y = 3 \times -2 + 2 = -4$

When $x = -1$, $y = 3 \times -1 + 2 = -1$

and so on...

b Draw the graph of $y = 3x + 2$



Plot the coordinate pairs from the table with crosses $(-2, -4)$, $(-1, -1)$, $(0, 2)$, $(1, 5)$. Join them with a straight line and extend it to the edge of the grid.

The steepness of a graph is called the **gradient**.

To find the gradient work out how many units the graph goes up for each unit it goes across.

positive gradient

negative gradient