

Straight line graphs and equations are used to show something that changes at a constant rate.

For example, when travelling by taxi, there is a charge as soon as you enter, and then the price increases steadily based on the length of the journey.

The equation of a straight line can be written as  $y$  equals  $mx$  plus  $c$ .

$m$  is the gradient, or steepness, of the line, and  $c$  is where the line cuts the  $y$ -axis.

That is also where  $x$  equals zero.

A positive gradient shows something increasing, and slopes up from left to right and a negative gradient shows something decreasing, and slopes down from left to right.

To find the gradient make a triangle using any two points on the line.

The gradient formula is gradient equals vertical height divided by horizontal distance.

Count the boxes in the  $y$ -direction for vertical height, 4 and in the  $x$ -direction for the horizontal distance, 5.

Substituting these values into the formula shows the gradient is 4 divided by 5, which is 0.8.

We still need the constant,  $c$ , which is the  $y$ -intercept.

Here  $c$  equals 3.

So, the equation of the line is  $y$  equals  $0.8x$  plus 3