

Linear graph definition

$y = mx + c$ is the equation for a diagonal line.

The m is the gradient of the line, this tells us how steep the line is.

The c is the y-intercept, this tells us where the graph crosses the y axis.



Year 8 foundation topic 9

Straight line graphs

What careers would use these skills?

Architect will calculate the gradient when looking at the pitch of a roof, economist and engineers.

Midpoints

The midpoint is the coordinate in the middle of two points. You can do this by averaging the x coordinates and then the y coordinates.

Eg. Find the midpoint between (2,3) and (6, 10)

The value in the middle of 2 and 6 is 4

The value in the middle of 3 and 10 is 6.5

So the midpoint is (4, 6.5)

Plotting a linear graph

Construct a table of values to calculate coordinates.

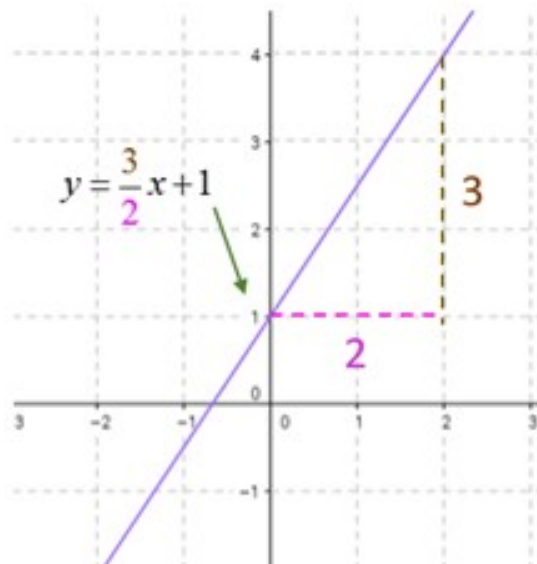
x	-3	-2	-1	0	1	2	3
y = x + 3	0	1	2	3	4	5	6

Then plot the points and join them up with a straight line.

Gradient-intercept method

(use when the equation is in the form $y = mx + c$)

1. Plot the y-intercept.
2. Using the gradient, plot a second point.
3. Draw a line through the two points plotted.



Direct proportion problems

Eg.1. Tam and Charles go strawberry picking. Tam pays £8.40 for 2 kg of strawberries.

Charles picks 4.5 kg of strawberries.

How much does Charles pay?

$$\frac{8.40}{2} = \text{£}4.20 \text{ per kg}$$

$$4.2 \times 4.5 = \text{£}18.90$$

Eg.2. Edie drinks 12 litres of water in 5 days.

At this rate, how much water would she drink in 3 days?

$$\frac{12}{5} = 2.4 \text{ L per day}$$

$$2.4 \times 3 = 7.2 \text{ L}$$