

Pupils should be taught to:

Generate points and plot graphs of functions

As outcomes, Year 7 pupils should, for example:

Use, read and write, spelling correctly:
 coordinates, coordinate pair/point, x-coordinate...
 grid, origin, axis, axes, x-axis...
 variable, straight-line graph, equation (of a graph)...

Generate and plot pairs of coordinates that satisfy a simple linear relationship. For example:

- $y = x + 1$
(0, 1), (1, 2), (2, 3), (3, 4), (4, 5), ...
- $y = 2x$
(0, 0), (1, 2), (2, 4), (-1, -2), (-2, -4), ...
- $y = 10 - x$
(0, 10), (1, 9), (2, 8), ...

Complete a table of values, e.g. to satisfy the rule $y = x + 2$:

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

Plot the points on a coordinate grid. Draw a line through the plotted points and extend the line. Then:

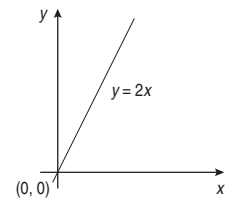
- choose an intermediate point, on the line but not one of those plotted;
- read off the coordinate pair for the chosen point and check that it also fits the rule;
- do the same for other points, including some fraction and negative values.

Try this for other graphs.

Recognise that all points on a line will fit the rule.

Begin to consider the features of graphs of simple linear functions, where y is given explicitly in terms of x . For example, construct tables of values then use paper or a graph plotter to:

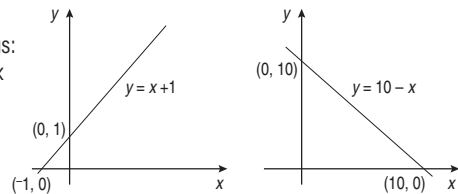
- Plot and interpret graphs such as:
 $y = x$, $y = 2x$, $y = 3x$, $y = 4x$, $y = 5x$



Note that graphs of the form $y = mx$:

- are all straight lines which pass through the origin;
- vary in steepness, depending on the function;
- match the graphs of multiples, but are continuous lines rather than discrete points.

- Plot graphs such as:
 $y = x + 1$, $y = 10 - x$



Note the positive or negative slope of the graph and the intercept points with the axes. Make connections with the value of the constant term.