



### Activity description

This activity is an introduction to linear graphs, leading to the link between the constants in the standard form of the equation ( $y = mx + c$ ) and the gradient and position of the line. Students work with families of graphs,  $y = x + c$ ,  $y = mx$  and finally  $y = mx + c$ . In each case students try to find the connection between the constant(s) in the equation and the graph.

### Suitability

Level 2 (Intermediate/Higher)

### Time

1 – 1½ hours

### Resources and equipment

Student information sheet and worksheet

*Optional:* Slideshow, calculators

### Key mathematical language

Coordinates, equation, graph,  $x$  axis,  $y$  axis, linear graph, gradient, intercept

### Notes on the activity

The slides include the examples on the student sheets and can be used to introduce each section. They also include the answers to aid class discussion.

### During the activity

You will need to explain that:

- the type of equation used in this activity will always give a straight line;
- although two points are sufficient to draw a straight line, it is advisable to work out a third point as a check;
- if any of the points calculated do not fit on the axes, then other points may be needed.

The slideshow is animated, so that students can be asked to use the equations to work out  $y$  coordinates before they appear. If the presentation is on a whiteboard, it will also be possible for students to draw the graph before it is shown.

### Points for discussion

At each stage, encourage students to look for patterns and links between the equations and the graphs.