SPECIFYING A STRAIGHT LINE

STUDENT RESOURCE

A plane contains an infinite number of straight lines! If you want to specify one of them there are many different ways in which you can do this.

- One way is to give two points that lie on the line.
  - Choose any two points on a coordinate grid.
  - Find the equation of the straight line through these two points. Make sure you can do this for any two points.
  - If the points are (x_1, y_1) and (x_2, y_2) write down the equation of the line.

- Here is another way of defining a straight line. It passes through a given point and is parallel to a given line.
  - Choose a line: write down its equation. Now choose a point not on the line and write down its coordinates.
  - Find the equation of the line that passes through the point and is parallel to the line.
  - Make sure you can do this for any line and any point.
  - If the point is (x_1, y_1) and the line is parallel to a line with gradient m write down the equation of the line.

- Now think of other ways of defining a line.
  Here are some words you might use:

  point
  line
  perpendicular
  locus
  equidistant
  gradient
  intercept
  distance
  angle

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