Straight lines

Teacher notes

Why use this resource?

Working through the parts of this problem will both remind students of the standard formula for a straight line and also allow them to explore different formulations of the equation. Some of the parts are quite challenging, while still using only familiar material.

This might be used before or after the resource Lots of lines!

Preparation

White boards for sketching could be helpful. It will probably be easier for students to work from a printout of the problem than to read from the board.

Possible approach

Following a think-pair-share model would work well here. A share stage in groups of 4 or 6 with a large sheet of paper to group their representations onto could work well.

Key questions

Questions 2 to 5 of the problem are in themselves key questions. Other questions which might be key to understanding could be

- How can we determine if three points are co-linear?
- Does a quadratic x term tell us anything?

Possible support

Encourage students to try sketching the scenarios (on a grid e.g. squared whiteboards might help more if students are struggling but will limit the abstraction). Prompting questions such as

- What does an equation of a line look like to you?
- Can you write that in a different form?

To help with question 2

- Can you find two lines with the same gradient?
- How can you tell whether they both pass through the same point?

Re-writing from one form to another will supply extra practice to help students gain confidence.

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Possible extension

This activity might be followed by Spot the difference.

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