

### Why use this resource?

This resource offers students an opportunity to refresh their understanding of the link between an equation and its graphical representation.

Students are presented with six equations but apparently only two lines on the graph, and are asked to explain what is going on. This incorporates a little bit of thinking about factorisation too.

### Preparation

This resource might be used after [Straight lines](#).

If students do not have access to graphical calculators access to a graphing package for use by the class or by groups could be useful for either support or extension.

A3 print outs might be used (see Possible approaches below) and possibly coloured pens or pencils.

### Possible approaches

Students could spend 5 minutes thinking about this individually before sharing with a partner what they have found/thought. Students might be invited to come and mark anything they think is missing on a copy projected on a whiteboard.

After some individual think time students might share briefly with a partner and then in groups of 4 or 6 add equation labels to the lines on a large printout to indicate what they think is going on and any missing points, using colours if this is helpful.

### Key questions

- Do equations of lines always look like  $ay + bx + c = 0$  or  $y = ax + by + c$ ?
- What do the factorized equations tell us?
- How can we tell if extra points are included?
- Are there clues in the equations that they are actually systems of straight lines and points?

### Possible support

Some students might benefit from entering individual equations into a graphical calculator or graphing package to help them pick apart what the equations are telling them.

## Possible extension

Thinking up other sets of equations, possibly with a graphing package to check them, could lead students into deeper thought about the links between equations, their graphical representations and factorization.