Activity 2

Title:
Perpendicular Bisectors

Type:
Evaluating Mathematical Statements

Why you might use this activity:

- to introduce new properties of straight lines;
- to develop deeper learning of the properties of straight lines;
- to connect the properties of straight lines.

How you might use this activity:

Learners:

- should read the solution to the given question and using the right hand side of sheet 1 explain in their own words what is happening on each line. They may need to add lines of their own to complete the solution to their satisfaction;
- could produce a display (with Sheet 1 enlarged to A3).

Meeting the needs of all learners:

Learners could:

- design a more difficult task, for example writing a solution for finding the equation of a line which cuts another line in a given ratio.

Reviewing the learning from this activity:

Learners could:

- design a question of their own with a marking scheme to try out on their partner.

What learners might do next:

- use this to explore perpendicular bisectors of chords on circles and see how the centre of a circle can be found from 3 points on the circumference.

Further ideas for this type of activity:

- Other problems that require a multi-step solution such as finding equations of tangents and normals;
- Solutions to exam questions.

Activity 2 Perpendicular Bisectors

Question: Find the perpendicular bisector of the line joining the points $(-2, 11)$ and $(4, -7)$.

Solution: Explanation

$$-\frac{18}{6} = -3$$

$$-3 \rightarrow \frac{1}{3}$$

$$y = \tfrac{1}{3}x + c$$

$$(1, 2)$$

$$2 = \tfrac{1}{3} \times 1 + c$$

$$c = \tfrac{5}{3}$$

$$y = \tfrac{1}{3}x + \tfrac{5}{3}$$

$$3y = x + 5$$