all different • all equal • all smiling
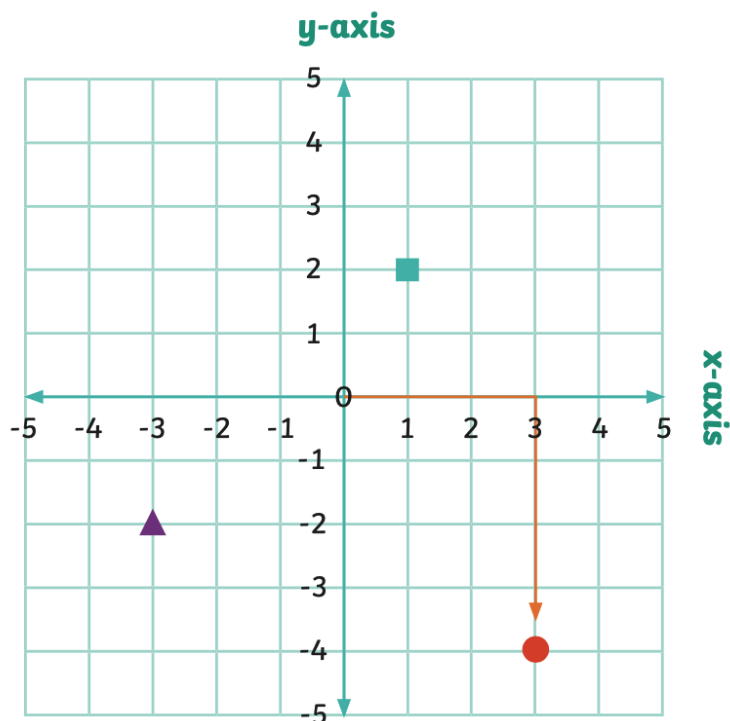COOPERS LANE

Four quadrants

Year Six
Position and Direction

Completing shapes

Vocabulary

Co-ordinates can use positive and negative numbers. Whether positive or negative, the x-axis co-ordinate is written first, followed by the y-axis co-ordinate.
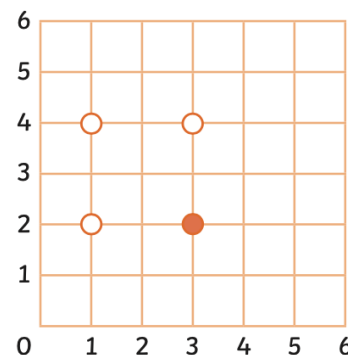
Using the properties of a shape, a polygon can be completed on a grid.

To make a square, think of a square's properties.

| translate |
| translation |
| reflect |
| reflection |
| up |
| down |
| right |
| left |
| coordinates |
| quadrant |
| x-axis |
| y-axis |
| horizontal |
| vertical |

y-axis

x-axis

● (3,-4)   ■ (1,2)   ▲ (-3,-2)

Look at the circle. It is 3 units along the x-axis and 4 down the y-axis. Its co-ordinates are (3, -4).

All of a square's sides are the same length. If the completed sides are 2 units in length, the missing point must complete two more sides of 2 units.

To make a right-angled triangle, think of the triangle's properties.

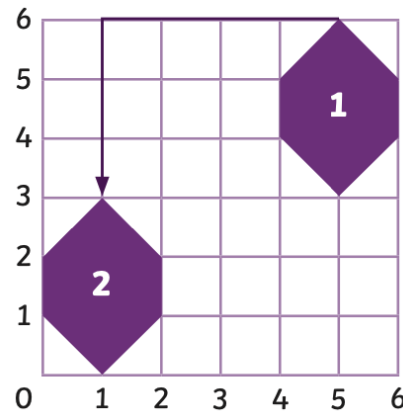A right-angled triangle should have three sides with one 90° angle.
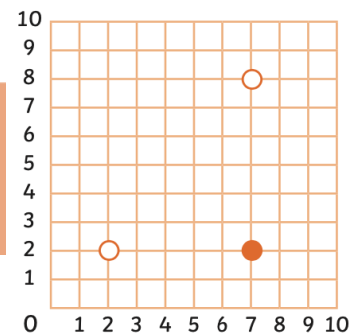
A shape is translated when it is moved without being rotated or resized. Every point of the shape moves the same distance and in the same direction.
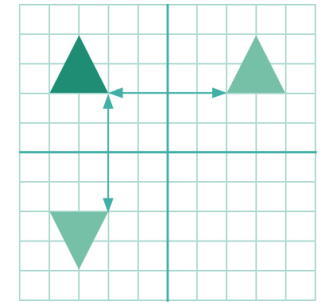
A shape is reflected when it is flipped over a line which acts as a mirror. Every point on the original shape is the same distance from the mirror line as the same point on the reflected shape. The original triangle has been reflected in the x-axis and in the y-axis.

Shape 1 has been translated 4 units left and 3 units down.

Missing co-ordinates

Shapes can be shown on unmarked grids.
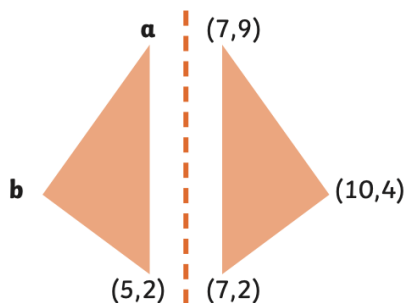
Point a is in the same position along the x-axis as (5,2) and in the same position on the y-axis as (7,9). Point a (5,9)

Point b is in the same position on the y-axis as (10,4). Both triangles will have the same width. the width of the right-hand triangle is 3. This means that the width of the left-hand triangle is also 3. Point b (2,4)

a   (7,9)

b   (10,4)

(5,2)   (7,2)