

### Year 6

### Position & Direction

We can use our knowledge of the properties of shape to solve problems involving position and direction. Engineers, pilots and astronauts all use coordinates in their jobs.

#### Builds from Year 5:

Describing position in the 1<sup>st</sup> quadrant.  
Translation and reflecting shapes.

#### This year:

Describing position in all 4 quadrants.  
Translation and reflecting shapes in all 4 quadrants.  
Identifying missing coordinates.  
Completing shapes.

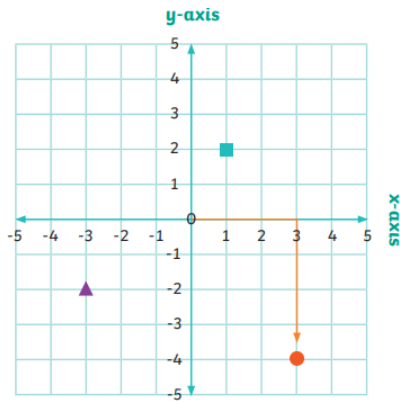
#### Leads to Key Stage 3:

Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.

### 4 Quadrants

Coordinates can be **positive** and **negative**.  
The x-axis is always read or written first, followed by the y-axis coordinate.

● (3,-4)    ■ (1,2)    ▲ (-3,-2)

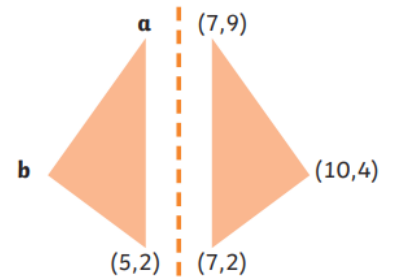


### Missing Coordinates

Shapes can be shown on unmarked grids.

**Point a** is in the same position along the x-axis as (5, 2) and is in the same position on the y-axis as (7, 9).

Point a is (5, 9).



**Point b** is in the same position in the y-axis as (10, 4).

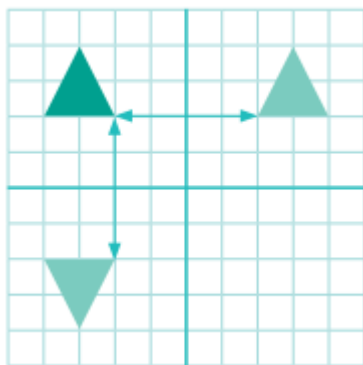
Both triangles will have the same width.

The width of the right-hand triangle is 3. This means that the width of the left-hand triangle is also 3.

Point b is (2, 4).

### Reflection

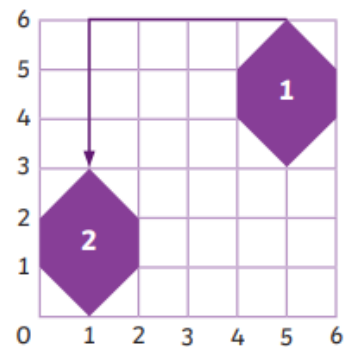
A shape is reflected when it is flipped over a line which acts as a mirror.



The original triangle has been reflected in the x-axis and the y-axis.

### Translation

A shape can be translated from one position on a grid to another. The shape must not be rotated or change size.



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

*Translation: same shape, different position.*

### Key Vocabulary

translate   translation   reflection   coordinates   quadrant   position   x-axis   y-axis   horizontal   vertical