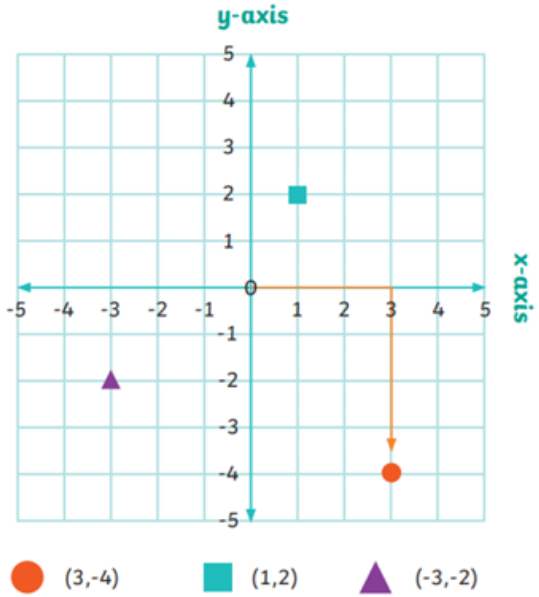
Year 6 Position and Direction

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

Four Quadrants

Coordinates can use positive and negative numbers. Whether positive or negative, the x-axis coordinate is written first, followed by the y-axis coordinate.

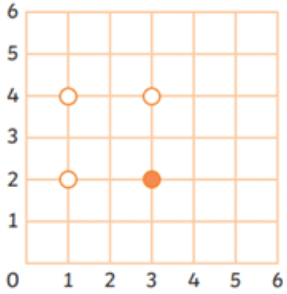


Look at the circle. It is 3 units along the x-axis and 4 down the y-axis. Its coordinates are (3,-4).

Completing Shapes

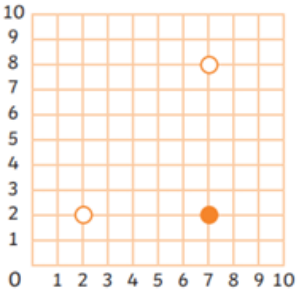
Using the properties of a shape, a polygon can be completed on a grid.

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



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.

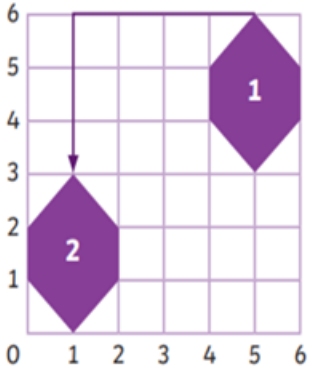
To make a right-angled triangle, think of the triangle's properties.



A right-angled triangle should have three sides with one 90° angle.

Translation

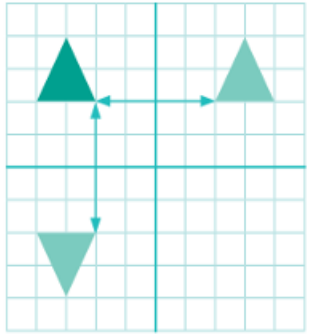
A shape is translated when it is moved without being rotated or resized. Every point of the shape moves the same distance and in the same direction.



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

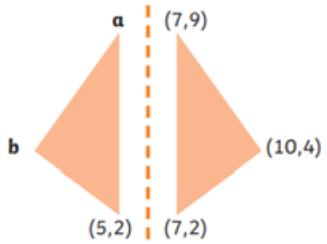
Reflections

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.



Missing Coordinates

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)