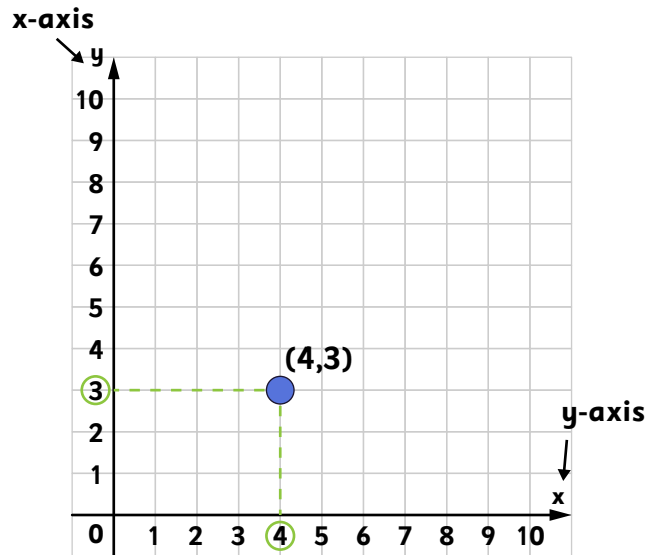


Position and direction knowledge organiser

Maths

Coordinate grid

This is a **coordinate** grid. It is used to tell us the position of an object on the grid. The 2 straight lines are called **axes**. The horizontal axis is the **x-axis**. The vertical axis is the **y-axis**.

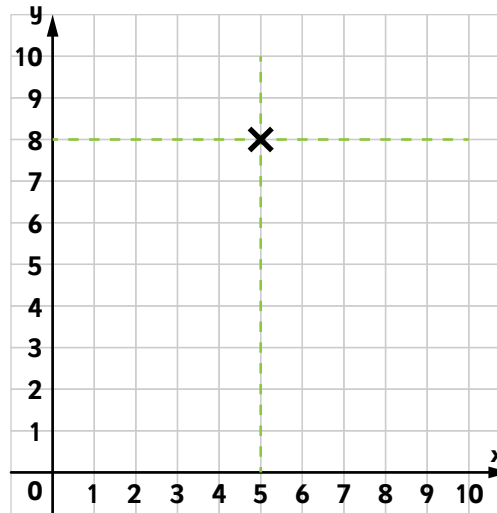


When we read, the x-coordinate **always** comes **before** the y-coordinate. We read **across** first and then **up**.

The coordinate of the blue circle is (4,3).

Coordinates are always written in brackets and have a comma between each number.

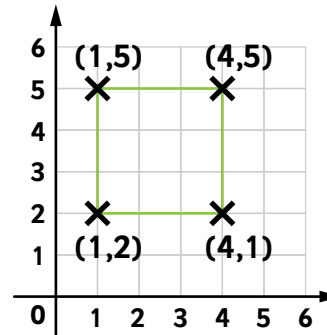
Plot coordinates



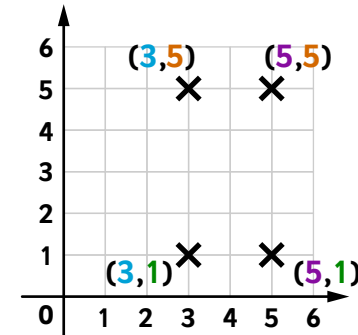
To plot coordinates on a grid you need to find the **x-coordinate** on the x-axis and draw a **vertical line**. Then, find the **y-coordinate** on the y-axis and draw a **horizontal line**. Finally, mark the point where the two lines meet.

Another method of plotting coordinates is to find the x-coordinate on the x-axis. Then, **count up** by the number of squares stated by the y-coordinate. Finally, mark the point.

Draw 2-D shapes on a grid



2-D shapes can be plotted by representing each **vertex** as a coordinate on the grid.

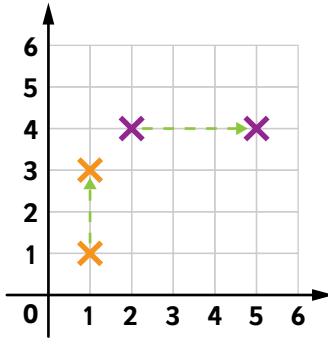


Patterns in the numbers of the coordinates can help us to work out the coordinates for missing vertices.



Translation

Movement on a grid is called a **translation**. Points can only **translate horizontally** or **vertically** along grid lines.

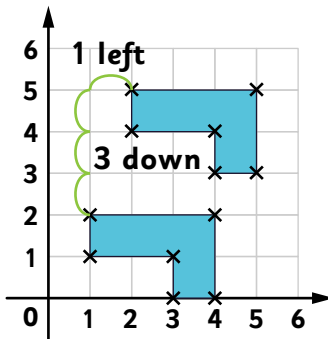


When moving a point vertically, the **y-coordinate** will change.

E.g., $(1, 1) \rightarrow (1, 3)$

When moving a point horizontally, the **x-coordinate** will change.

E.g., $(2, 4) \rightarrow (5, 4)$

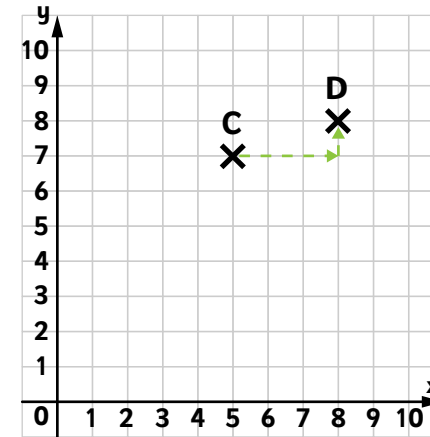


When **translating shapes**, it helps to translate each **vertex** to ensure accuracy.

Describing translations

When describing translations, you must carefully **count** the number of squares the point or shape has moved. You must count **left** or **right** first, and then count **up** or **down**.

E.g., C to D is 3 right and 1 up.



When describing the **translation of a shape**, you must look at the translation of the **vertices**.

E.g. X to Y is 5 right and 4 down.

