

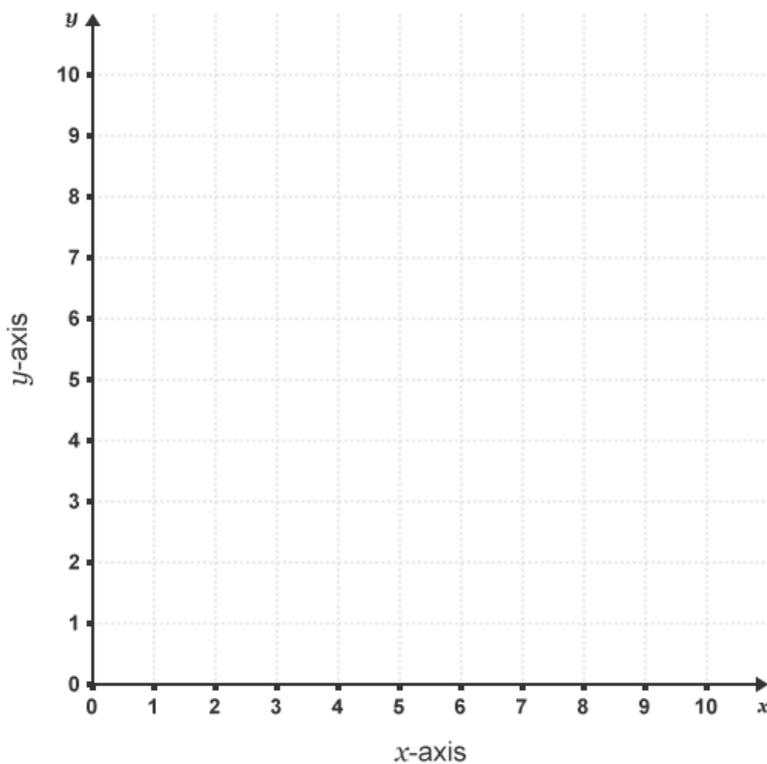
# Coordinates

A point on a grid has **two numbers** to identify its position. These numbers are known as coordinates.

Coordinates are always written as the number of steps across first, then the number of steps up or down.

Grids have **two axes**. The **horizontal axis is called the  $x$ -axis** and the **vertical axis is called the  $y$ -axis**. These axes can be used to find a point on a grid.

All graphs have an  $x$ -axis and a  $y$ -axis. Here is a diagram of a typical set of axes.



- The point (0, 0) is called the **origin**.
- The horizontal axis is the  **$x$ -axis**.
- The vertical axis is the  **$y$ -axis**.

**The  $x$ -axis is horizontal, and the  $y$ -axis is vertical.**

One way to remember which axis is which is ' $x$  is a **cross** so the  $x$ -axis is across'.

## Coordinates

Coordinates are written as two numbers, separated by a comma and contained within round brackets. For example, (2, 3), (5, 7) and (4, 4).

- The **first** number refers to the  $x$ -coordinate.
- The **second** number refers to the  $y$ -coordinate.

**Coordinates are written alphabetically - so  $x$  comes before  $y$  ( $x, y$ ). One way to remember is 'you walk along the road before you go up the stairs'.**

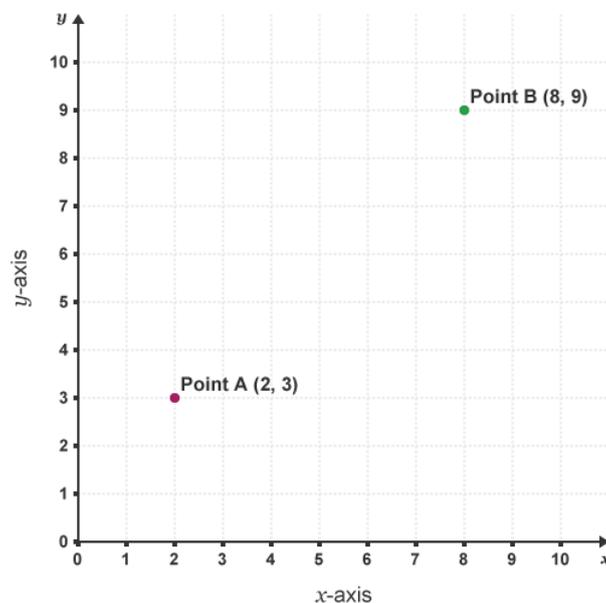
## Plotting coordinates

When describing coordinates, always count from the origin.

For example, to describe the position of point A in the following diagram, start at the origin and move two squares in the horizontal ( $x$ ) direction. Then move three squares in the vertical ( $y$ ) direction.

The coordinates of point A are therefore (2, 3).

Similarly, the coordinates of point B are (8, 9).



## The four quadrants

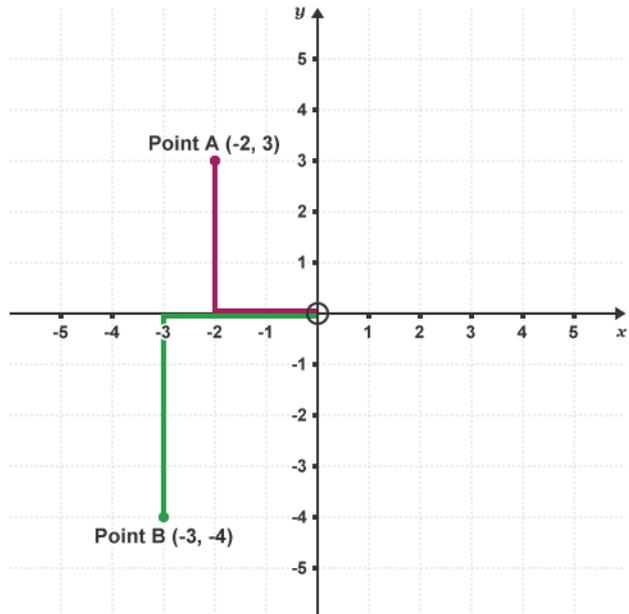
**Remember the rule still applies for four quadrants: 'you always walk along the road before you go up or down the stairs'.**

Extending the  $x$  and  $y$  axes beyond the origin reveals the negative scales. The regions separated by the axes are called quadrants. There are four quadrants in total.

Coordinates in these quadrants are still described in terms of  $x$  and  $y$ , but now the values of both  $x$  and  $y$  can be either **positive** or **negative**.

For example, in the diagram below:

- The coordinates of A are  $(-2, 3)$
- The coordinates of B are  $(-3, -4)$



What are the coordinates of C for each of these examples?

