



Understanding the Cartesian plane and co-ordinates

Key focus

A point on the Cartesian plane is written as (x, y) . Move **across first** for the x -value, then **up or down** for the y -value.

How to read a point

1. Start at the origin $(0, 0)$.
2. Move left or right to find the x -value.
3. Move up or down to find the y -value.
4. Write the point in brackets as (x, y) .

Quick reminders

- positive x : right
- negative x : left
- positive y : up
- negative y : down
- $(0, 0)$ is the origin

Example 1: reading coordinates

A point is 4 right and 3 up.
So the coordinates are $(4, 3)$.

Example 2: on an axis

A point 5 units left on the x -axis is $(-5, 0)$.
Because it is on the x -axis, the y -value is 0.

Quadrants

Quadrant I: $(+, +)$
Quadrant II: $(-, +)$
Quadrant III: $(-, -)$
Quadrant IV: $(+, -)$

Same horizontal or vertical line

Points on the same horizontal line have the same y -value.
Points on the same vertical line have the same x -value.

Try these

1. Write the point that is 3 left and 2 up.
2. Plot the point $(4, -1)$.
3. Which quadrant is $(-2, -3)$ in?
4. Write two points on the line $y = 3$.

Watch for

Do not swap the order. $(2, -5)$ means right 2, then down 5. It does **not** mean down 2, then right 5.

Watch for

Points on an axis are **not** in a quadrant. If $x = 0$, the point lies on the y -axis. If $y = 0$, it lies on the x -axis.