

Grade 5 · The Coordinate Plane · Lesson

Common Core 5.G.A.1, 5.G.A.2 · mathovore.fr

The coordinate plane is a grid formed by a horizontal x-axis and a vertical y-axis that meet at the origin, (0, 0). An ordered pair (x, y) names a point: move x units right, then y units up. In the first quadrant both numbers are zero or positive, so (3, 5) and (5, 3) are two different points.

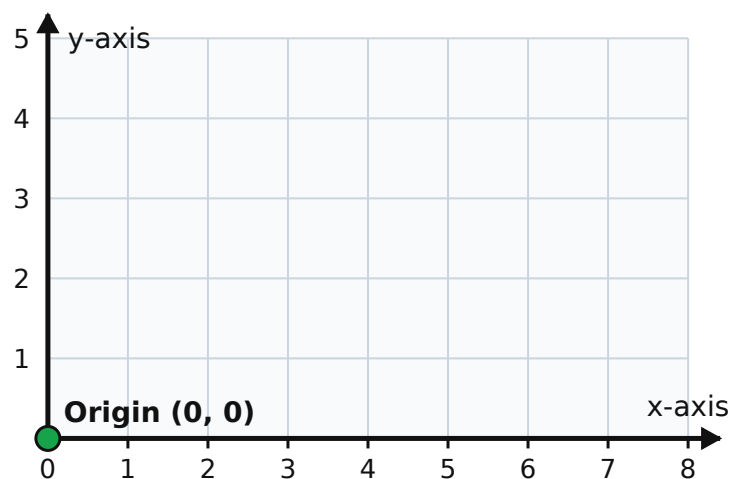
Grade 5 Common Core: 5.G.A.1 · 5.G.A.2

Key facts:

- The x-axis is horizontal, the y-axis is vertical, and they cross at the origin (0, 0).
- In an ordered pair (x, y), the first number tells how far right and the second how far up.
- The order matters: (3, 5) and (5, 3) are different points.
- Points on the x-axis have $y = 0$, and points on the y-axis have $x = 0$.
- Graphing real-world data pairs lets you read distances and meanings from the picture.

What is the coordinate plane?

A **coordinate plane** is a flat grid made from two number lines that cross at right angles. The horizontal number line is the **x-axis**. The vertical number line is the **y-axis**. They meet at the **origin**, the point where both numbers are 0. In Grade 5 we use the first quadrant, where every point is zero or positive in both directions.



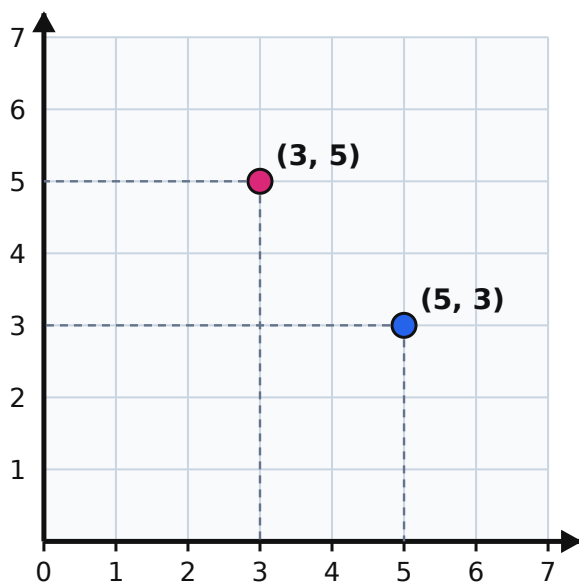
The axes cross at the origin, the point (0,0).

Ordered pair

An **ordered pair** such as $(6,2)$ names one point. The first number is the **x-coordinate**: how far to move right from the origin. The second number is the **y-coordinate**: how far to move up.

Why does the order of the numbers matter?

The pairs $(3,5)$ and $(5,3)$ use the same numbers, but they are two different points. Always go across first, then up, the same way you read a street address before climbing the stairs.

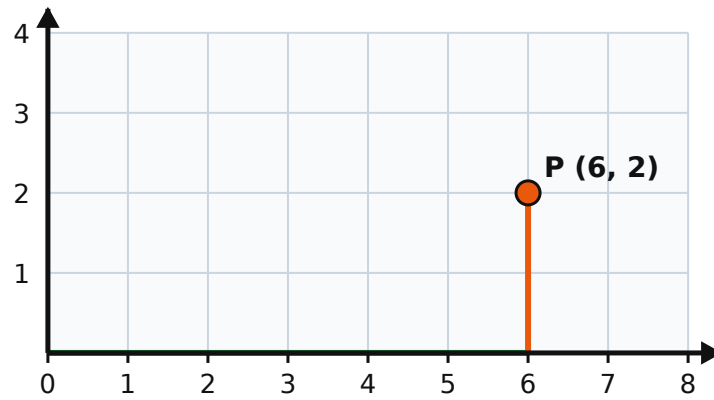


Same numbers, different order, different points.

How do you plot a point?

Plot the point $(6,2)$ with these steps.

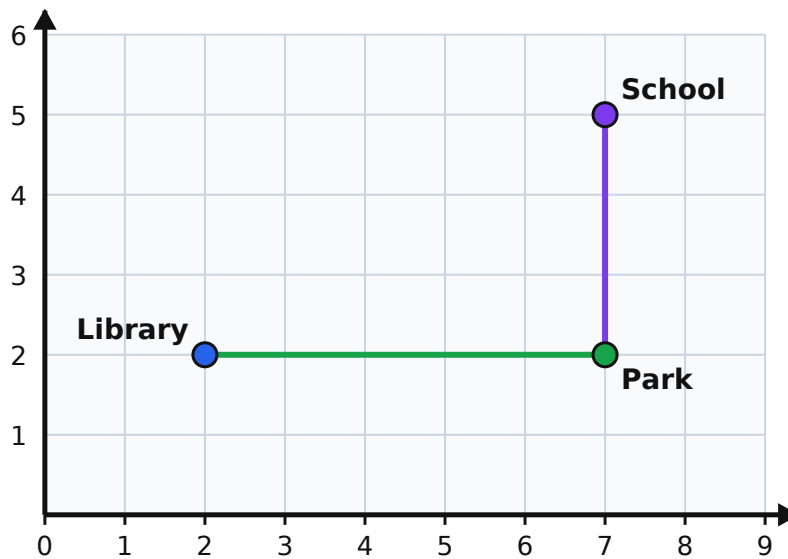
1. Place your pencil on the origin $(0,0)$.
2. Move right along the x-axis until you reach 6.
3. From there, move straight up 2 units.
4. Draw a dot and label it with its ordered pair.



Start at the origin, go 6 right, then 2 up.

How do you use the coordinate plane in real life?

Maps, video games, and science graphs all use ordered pairs. In a data graph, the x-coordinate might be hours and the y-coordinate might be dollars earned. On the map below, one square equals one block.



Library (2,2), Park (7,2), School (7,5).

The Library and the Park have the same y-coordinate, 2, so they sit on one horizontal line. The distance between them is $7 - 2 = 5$ blocks. The Park and the School have the same x-coordinate, 7, so the distance is $5 - 2 = 3$ blocks.

Words	What it means
Same y-coordinate	Points lie on a horizontal line
Same x-coordinate	Points lie on a vertical line
Point on the x-axis	y-coordinate is 0, like (4,0)

Words	What it means
Point on the y-axis	x-coordinate is 0, like (0,4)

The Coordinate Plane: frequently asked questions

What is the origin on a coordinate plane?

The origin is the point where the x-axis and y-axis cross. Its ordered pair is (0,0). Every other point is measured from it.

Which number comes first in an ordered pair?

The x-coordinate comes first. It tells how far to move right along the x-axis. The y-coordinate comes second and tells how far to move up.

How do you find the distance between two points in a row?

When two points have the same y-coordinate, subtract the x-coordinates. For (2,3) and (7,3), the distance is $7-2=5$ units.

What is the first quadrant?

The first quadrant is the part of the coordinate plane where both coordinates are zero or positive. Grade 5 graphing happens in this region.

How do I graph a real-world situation?

Write each pair of data values as an ordered pair, label each axis with what it measures, and plot the points. A point (3,24) for hours and dollars means 3 hours and \$24.