

# Understanding the Coordinate Plane

Grade 5 Math • Section 10.1

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 14

## Quick Review and Helpful Hints

**Coordinate plane:** Two perpendicular number lines called **axes**. Horizontal:  $x$ -axis. Vertical:  $y$ -axis. They meet at the **origin**  $(0, 0)$ .

**Ordered pair**  $(x, y)$ : The first number tells how far to go **right** (along  $x$ ); the second tells how far to go **up** (along  $y$ ).

In Grade 5, we work in the **first quadrant** (both coordinates  $\geq 0$ ).

**Example:** Plot and name the point  $(3, 5)$ .

Start at the origin. Move 3 units to the right along the  $x$ -axis. Then move 5 units up. Mark the point. This is  $(3, 5)$ . The  $x$ -coordinate is 3 and the  $y$ -coordinate is 5.

**Answer:** Right 3, up 5

## Practice Problems

Write the ordered pair for each description, or describe the location.

- Right 4, up 2: \_\_\_\_\_
- Right 0, up 7: \_\_\_\_\_
- Right 6, up 0: \_\_\_\_\_
- Right 5, up 5: \_\_\_\_\_
- $(2, 8)$ : go right \_\_\_\_\_, up \_\_\_\_\_
- $(0, 0)$  is called the \_\_\_\_\_
- $(7, 3)$ : the  $x$ -coordinate is \_\_\_\_\_
- $(1, 9)$ : the  $y$ -coordinate is \_\_\_\_\_
- Right 10, up 4: \_\_\_\_\_
- $(3, 6)$  and  $(6, 3)$ : Are these the same point? \_\_\_\_\_
- A point is on the  $x$ -axis at 8. Ordered pair: \_\_\_\_\_
- A point is on the  $y$ -axis at 5. Ordered pair: \_\_\_\_\_

## Word Problems

- On a map, a school is at  $(2, 3)$  and a library is at  $(2, 7)$ . Describe how to get from the school to the library. How many units apart are they? \_\_\_\_\_
- Sara says  $(4, 5)$  and  $(5, 4)$  are the same point because they use the same numbers. Is she correct? Explain. \_\_\_\_\_



## Answer Keys

- |    |        |     |               |
|----|--------|-----|---------------|
| 1. | (4, 2) | 8.  | 9             |
| 2. | (0, 7) | 9.  | (10, 4)       |
| 3. | (6, 0) | 10. | No            |
| 4. | (5, 5) | 11. | (8, 0)        |
| 5. | 2, 8   | 12. | (0, 5)        |
| 6. | origin | 13. | up 4 units; 4 |
| 7. | 7      | 14. | No            |

### Step-by-Step Explanations

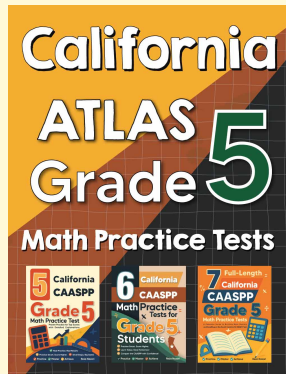
- Start with the main idea. For the coordinate plane, right gives the  $x$ -coordinate and up gives the  $y$ -coordinate. The first coordinate tells how far to move right, and the second tells how far to move up.
- Keep the work tidy. For the coordinate plane, no movement right means  $x = 0$ ; up 7 means  $y = 7$ . Switching the coordinates usually changes the point, so order matters.
- Look at what the numbers mean. For the coordinate plane, right 6 and up 0 gives (6, 0). A table of ordered pairs makes a graphing pattern much easier to follow.
- Use the setup first. For the coordinate plane, right 5 and up 5 gives (5, 5). The first coordinate tells how far to move right, and the second tells how far to move up.
- Check the size of the answer. For the coordinate plane, in (2, 8),  $x = 2$  and  $y = 8$ . Switching the coordinates usually changes the point, so order matters.
- Match the operation to the words. For the coordinate plane, the point (0, 0) is the origin. A table of ordered pairs makes a graphing pattern much easier to follow.
- Write the important values first. For the coordinate plane, the first coordinate is the  $x$ -coordinate. The first coordinate tells how far to move right, and the second tells how far to move up.

- Follow the pattern carefully. For the coordinate plane, the second coordinate is the  $y$ -coordinate. Switching the coordinates usually changes the point, so order matters.
- Start with the main idea. For the coordinate plane, right 10 and up 4 gives (10, 4). A table of ordered pairs makes a graphing pattern much easier to follow.
- Keep the work tidy. For the coordinate plane, the order matters; (3, 6) and (6, 3) are different points. The first coordinate tells how far to move right, and the second tells how far to move up.
- Look at what the numbers mean. For the coordinate plane, a point on the  $x$ -axis has  $y = 0$ . Switching the coordinates usually changes the point, so order matters.
- Use the setup first. For the coordinate plane, a point on the  $y$ -axis has  $x = 0$ . A table of ordered pairs makes a graphing pattern much easier to follow.
- Check the size of the answer. For the coordinate plane, the  $x$ -coordinate stays 2 and  $y$  changes from 3 to 7. The first coordinate tells how far to move right, and the second tells how far to move up.
- Match the operation to the words. For the coordinate plane, the first number tells right-left position and the second tells up-down position, so (4, 5) and (5, 4) differ. Switching the coordinates usually changes the point, so order matters.



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