

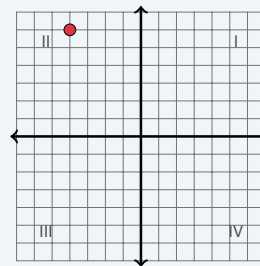
# The Coordinate Plane

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 18

## Quick Review and Helpful Hints

The coordinate plane has a horizontal  $x$ -axis and a vertical  $y$ -axis meeting at the *origin*  $(0, 0)$ . A point  $(x, y)$  tells you how far right or left ( $x$ ) and how far up or down ( $y$ ). The four *quadrants* are numbered I–IV counterclockwise, starting at the top-right.

▶ **Example:** In which quadrant is the point  $(-2, 3)$ ? **Work:** The  $x$ -coordinate  $-2$  is negative (left of center) and the  $y$ -coordinate  $3$  is positive (above center): upper-left. ★ **Answer:** Quadrant II



$(-2, 3)$  is in Quadrant II.

### ◆ Practice Problems

Name the quadrant or axis, or answer as directed.

- |  |  |
|--|--|
| <p>1. Quadrant of <math>(4, 5)</math> _____</p> <p>2. Quadrant of <math>(-2, 3)</math> _____</p> <p>3. Quadrant of <math>(-4, -1)</math> _____</p> <p>4. Quadrant of <math>(5, -2)</math> _____</p> <p>5. Quadrant of <math>(-6, -6)</math> _____</p> <p>6. Quadrant of <math>(3, -7)</math> _____</p> <p>7. Which axis is <math>(0, 4)</math> on? _____</p> | <p>8. Which axis is <math>(-5, 0)</math> on? _____</p> <p>9. Quadrant of <math>(1, 8)</math> _____</p> <p>10. Quadrant of <math>(-3, 5)</math> _____</p> <p>11. <math>(2, -3)</math> means right 2, then? _____</p> <p>12. <math>x</math>-coordinate of <math>(7, -2)</math> _____</p> <p>13. <math>y</math>-coordinate of <math>(7, -2)</math> _____</p> <p>14. Coordinates of the origin _____</p> |
|--|--|

### ◆ Word Problems

- |   |   |
|---|---|
| <p>15. A treasure is 3 units right and 4 units up from the origin. Give its coordinates. _____</p> <p>16. A point is in Quadrant III. What are the signs of its <math>x</math>- and <math>y</math>-coordinates? _____</p> | <p>17. Point <math>A</math> is at <math>(-2, 5)</math>. Reflect it across the <math>y</math>-axis. Give the new coordinates. _____</p> <p>18. Point <math>B</math> is at <math>(4, -1)</math>. Reflect it across the <math>x</math>-axis. Give the new coordinates. _____</p> |
|---|---|



## Answer Keys

- |                                     |   |  |
|-------------------------------------|---|--|
| 1. <input type="text" value="I"/>   | 7. <input type="text" value="y-axis"/>  | 13. <input type="text" value="-2"/>            |
| 2. <input type="text" value="II"/>  | 8. <input type="text" value="x-axis"/>  | 14. <input type="text" value="(0, 0)"/>        |
| 3. <input type="text" value="III"/> | 9. <input type="text" value="I"/>       | 15. <input type="text" value="(3, 4)"/>        |
| 4. <input type="text" value="IV"/>  | 10. <input type="text" value="II"/>     | 16. <input type="text" value="both negative"/> |
| 5. <input type="text" value="III"/> | 11. <input type="text" value="down 3"/> | 17. <input type="text" value="(2, 5)"/>        |
| 6. <input type="text" value="IV"/>  | 12. <input type="text" value="7"/>      | 18. <input type="text" value="(4, 1)"/>        |

### Step-by-Step Explanations

**1.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Both coordinates are positive (right and up): Quadrant I. So the final answer is I.

**2.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $x < 0, y > 0$  (left and up): Quadrant II. So the final answer is II.

**3.** Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Both are negative (left and down): Quadrant III. So the final answer is III.

**4.** Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $x > 0, y < 0$  (right and down): Quadrant IV. So the final answer is IV.

**5.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Both negative: Quadrant III. So the final answer is III.

**6.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $x > 0, y < 0$ : Quadrant IV. So the final answer is IV.

**7.** Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is With  $x = 0$ , the point sits on the  $y$ -axis. So the final answer is  $y$ -axis.

**8.** Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is With  $y = 0$ , the point sits on the  $x$ -axis. So the final answer is  $x$ -axis.

**9.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Both positive: Quadrant I. So the final answer is I.

**10.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $x < 0, y > 0$ : Quadrant II. So the final answer is II.

**11.** Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The  $y$ -coordinate  $-3$  means go down 3. So the final answer is down 3.

**12.** Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The first number is the  $x$ -coordinate: 7. So the final answer is 7.

**13.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The second number is the  $y$ -coordinate:  $-2$ . So the final answer is  $-2$ .

**14.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The origin is where the axes cross:  $(0, 0)$ . So the final answer is  $(0, 0)$ .

**15.** Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Right 3 is  $x = 3$ , up 4 is  $y = 4$ :  $(3, 4)$ . So the final answer is  $(3, 4)$ .

**16.** Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is In Quadrant III both coordinates are negative. So the final answer is both negative.

**17.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Reflecting across the  $y$ -axis flips the sign of  $x$ :  $(2, 5)$ . So the final answer is  $(2, 5)$ .

**18.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Reflecting across the  $x$ -axis flips the sign of  $y$ :  $(4, 1)$ . So the final answer is  $(4, 1)$ .



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