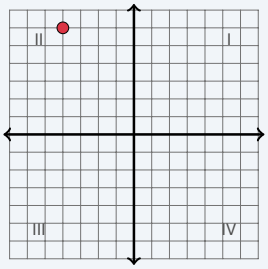
# The Coordinate Plane

| 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.*

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

## Word Problems

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

# Answer Keys

| | | |
|---|---|---|
| **1.** I | **7.** $y$-axis | **13.** $-2$ |
| **2.** II | **8.** $x$-axis | **14.** $(0, 0)$ |
| **3.** III | **9.** I | **15.** $(3, 4)$ |
| **4.** IV | **10.** II | **16.** both negative |
| **5.** III | **11.** down $3$ | **17.** $(2, 5)$ |
| **6.** IV | **12.** $7$ | **18.** $(4, 1)$ |

## 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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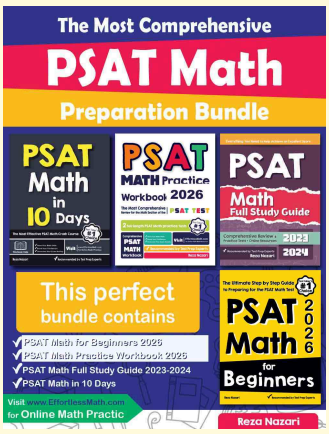


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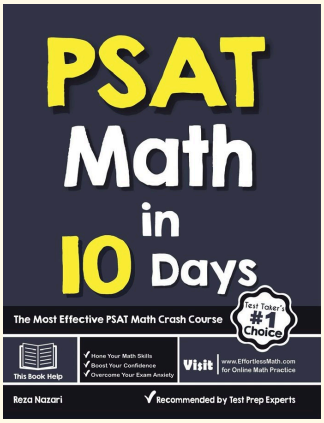


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