

Coordinate Quest

Use ordered pairs to locate, measure, and connect points.

GRADE 6 • 6.MG.3

6.MG.3 "The student will describe the characteristics of the coordinate plane and graph ordered pairs. Identify and label the axes, origin, and quadrants of a coordinate plane..."

NAME _____

DATE _____

COORDINATE PLANE RULES

The horizontal x-axis and vertical y-axis meet at the origin, (0, 0). In an ordered pair (x, y), x tells horizontal movement first and y tells vertical movement second. A point is $|x|$ units from the y-axis and $|y|$ units from the x-axis.

WORKED EXAMPLE

Describe the location of P(9, -8).
Name its quadrant and its distance from each axis.

1. $x = 9$ is positive and $y = -8$ is negative.
2. A positive x and negative y place P in Quadrant IV.
3. Distance to the y-axis is $|9| = 9$ units.
4. Distance to the x-axis is $|-8| = 8$ units.

Answer: P is in Quadrant IV. It is 9 units from the y-axis and 8 units from the x-axis.

PRACTICE 6 problems

- 1** Point A is at (0, -6). Is it in a quadrant, on the x-axis, or on the y-axis?

ANSWER _____

- 2** Name the quadrant that contains B(-3, 5).

ANSWER _____

- 3** Name the quadrant that contains C(4, -2).

ANSWER _____

- 4** Point T is 2 units left and 6 units up from the origin. Write its ordered pair and name its quadrant.

ANSWER _____

- 5** Point H is at (-5, 3). How far is H from the y-axis? How far is H from the x-axis?

ANSWER _____

- 6** Points J(-4, 1) and K(-4, -3) are endpoints of a vertical segment. What is the length of JK?

ANSWER _____

APPLY IT Show your work

- 1** On a skate park map, the ramp is at $R(-6, 2)$ and the water station is at $W(-6, -4)$. How many units apart are the ramp and water station?

WORK SPACE

ANSWER _____

- 2** In a video game, a player is at checkpoint $D(3, -5)$. Name the quadrant. Then tell how far the checkpoint is from the y-axis and from the x-axis.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A rectangular screen frame has vertices $L(-2, -1)$, $M(5, -1)$, $N(5, 4)$, and $O(-2, 4)$. Find the length of a horizontal side, the length of a vertical side, and the perimeter. Explain how the coordinates show your answer.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Point A is at (0, -6). Is it in a quadrant, on the x-axis, or on the y-axis?	on the y-axis
2	Name the quadrant that contains B(-3, 5).	Quadrant II
3	Name the quadrant that contains C(4, -2).	Quadrant IV
4	Point T is 2 units left and 6 units up from the origin. Write its ordered pair and name its quadrant.	(-2, 6), Quadrant II
5	Point H is at (-5, 3). How far is H from the y-axis? How far is H from the x-axis?	5 units from the y-axis and 3 units from the x-axis
6	Points J(-4, 1) and K(-4, -3) are endpoints of a vertical segment. What is the length of JK?	4 units

PART 2 • APPLY IT

- 6 units** The points have the same first coordinate, so they are on the same vertical line. Count from 2 down to -4, which is 6 units.
- Quadrant IV; 3 units from the y-axis and 5 units from the x-axis** A positive first coordinate and negative second coordinate place D in Quadrant IV. Use the absolute value of each coordinate for the distance from the matching axis.

CHALLENGE

A horizontal side is 7 units, and a vertical side is 5 units. The first coordinate changes from -2 to 5, which is 7 units, and the second coordinate changes from -1 to 4, which is 5 units. The perimeter is $7 + 5 + 7 + 5 = 24$ units.

Accept quadrant names written with Roman numerals or as QII and QIV. Accept equivalent wording for axis locations and distances when the correct axis and unit measure are clear.