LESSON MAKER PRO

Points With Purpose

Locate rational numbers on number lines and coordinate planes.

GRADE 6 · NY-6.NS.6

NY-6.NS.6 "Understand a rational number as a point on the number line. Use number lines and coordinate axes to represent points on a number line and in the coordinate plane with negative number coordinates."

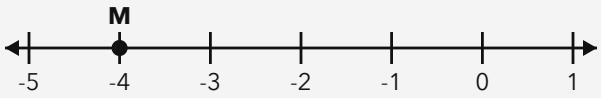
NAME _____ DATE _____

LOCATIONS AND SIGNS

A rational number names a location on a number line. Numbers to the left of 0 are negative, and numbers to the right are positive. On a coordinate plane, write the horizontal x-coordinate first and the vertical y-coordinate second.

WORKED EXAMPLE

What rational number is represented by point M?



1. Find 0 on the number line.
2. Move 4 equal spaces left from 0 to point M.
3. A location left of 0 is negative.

Answer: M = -4

PRACTICE 6 problems

1 What rational number is represented by point A?



ANSWER _____

2 What rational number is represented by point B?



ANSWER _____

3 Which rational number is farther left on a number line, -3/4 or 2/5?

ANSWER _____

4 A point is 2 1/4 units to the left of 0. What is its coordinate?

ANSWER _____

5 Point C is at (6, -1). State the x-coordinate and the y-coordinate.

ANSWER _____

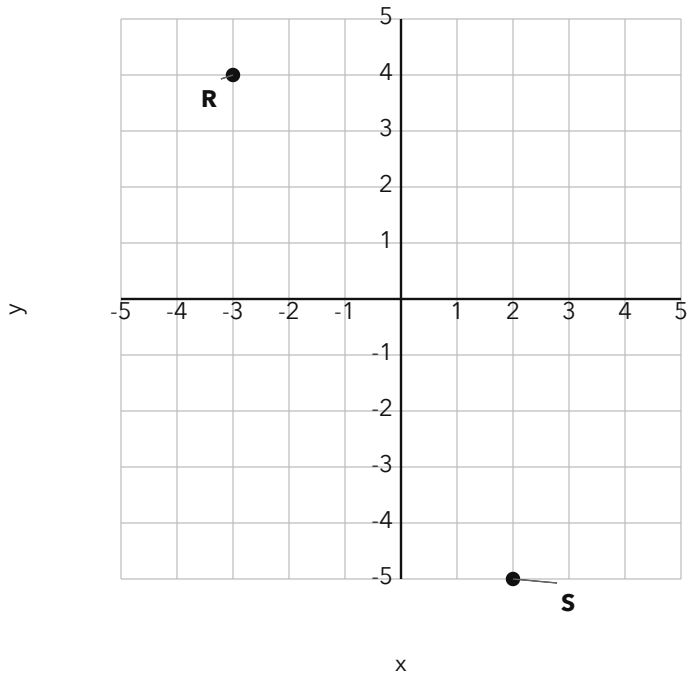
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6 Which point is in Quadrant IV? A is (-5, -2), B is (4, -3), and C is (-2, 5).

ANSWER _____

APPLY IT Show your work

1 A skate park designer uses the grid to mark a ramp, R, and a bench, S. Write the coordinates of R and S. Which location is to the right of and below the origin?



ANSWER _____

2 A scuba diver is at -1 3/4 meters relative to sea level. A sensor is 2 1/2 meters lower than the diver. What is the sensor's coordinate relative to sea level?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Point Q is at (-2 1/2, 3/4). Reflect Q across the y-axis, then reflect the result across the x-axis. State the final coordinate and explain which signs change.

WORK SPACE AND ANSWER

ANSWER KEY # Points With Purpose

GRADE 6 · NY-6.NS.6

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What rational number is represented by point A?	**-7**
2	What rational number is represented by point B?	**5**
3	Which rational number is farther left on a number line, -3/4 or 2/5?	**-3/4**
4	A point is 2 1/4 units to the left of 0. What is its coordinate?	**-2 1/4**
5	Point C is at (6, -1). State the x-coordinate and the y-coordinate.	**x-coordinate: 6; y-coordinate: -1**
6	Which point is in Quadrant IV? A is (-5, -2), B is (4, -3), and C is (-2, 5).	**B, (4, -3)**

PART 2 · APPLY IT

1. **R = (-3, 4); S = (2, -5). S is to the right of and below the origin.** Read x first and y second for each plotted point. A positive x-value and negative y-value place S right of and below the origin.
2. **-4 1/4 meters** Moving lower means moving down on a vertical number line toward more negative coordinates. Calculate -1 3/4 - 2 1/2 = -4 1/4 meters.

CHALLENGE

The final coordinate is (2 1/2, -3/4). A y-axis reflection changes the sign of x, and an x-axis reflection changes the sign of y.

Accept equivalent rational-number forms, such as -2.25 for -2 1/4 and -4.25 for -4 1/4. Accept coordinate answers with or without spaces after commas.