

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 _____

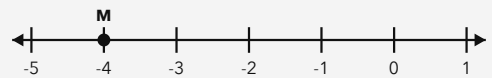
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LOCATIONS AND SIGNS

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?

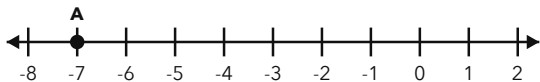


1. Find 0 on the number line.
2. Move 4 equal spaces left from 0 to point M.
3. A location left of 0 is negative.

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 $2 \frac{1}{4}$ 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.

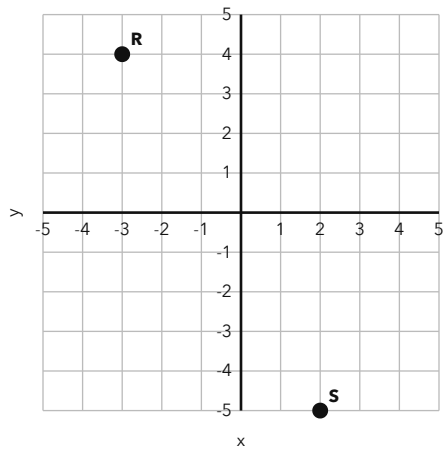
ANSWER _____

- 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 $-1\frac{3}{4}$ meters relative to sea level. A sensor is $2\frac{1}{2}$ 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 $(-2\frac{1}{2}, \frac{3}{4})$. 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

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 $2\frac{1}{4}$ units to the left of 0. What is its coordinate?	$-2\frac{1}{4}$
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 $\frac{1}{4}$ meters** Moving lower means moving left on the vertical number line. Calculate $-1\frac{3}{4} - 2\frac{1}{2} = -4\frac{1}{4}$.

CHALLENGE

The final coordinate is (2 $\frac{1}{2}$, -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 $-2\frac{1}{4}$ and -4.25 for $-4\frac{1}{4}$. Accept coordinate answers with or without spaces after commas.