LESSON MAKER PRO

Signs and Sides

Locate opposites and reflected points.

GRADE 6 · MT.6.NS.6

MT.6.NS.6 "Understand a rational number as a point on the number line and extend number line diagrams and coordinate axes by: Recognizing opposite signs of numbers as indicating locations on opposite sides of 0 on the number line..."

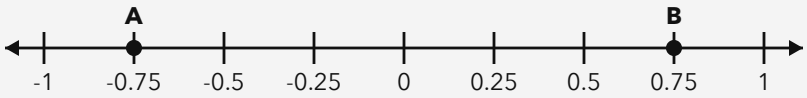
NAME _____ DATE _____

THE BIG IDEA

Opposites are the same distance from 0 on different sides of a number line. On a coordinate plane, changing the sign of x reflects a point across the y-axis. Changing the sign of y reflects it across the x-axis.

WORKED EXAMPLE

Which labeled point is opposite A?



1. A is at -3/4.
2. The opposite is 3/4, at B.

Answer: B

PRACTICE 4 problems

1 What is the opposite of -5/2? What is the opposite of your answer?

ANSWER _____

2 Reflect P(-2, 4) across the y-axis. Give its new coordinates.

ANSWER _____

3 Reflect Q(1/2, -3) across the x-axis. Give its new coordinates.

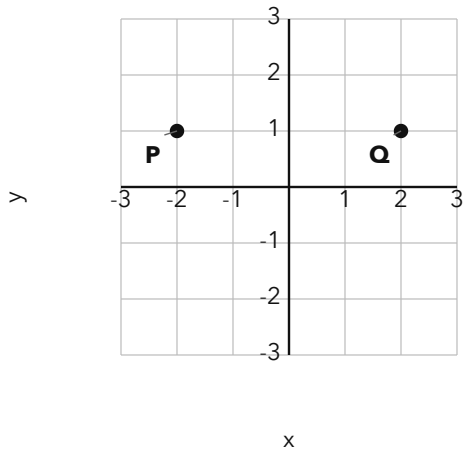
ANSWER _____

4 Which quadrant contains (-4, -1/2)?

ANSWER _____

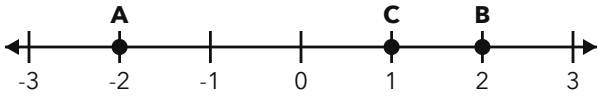
APPLY IT Show your work

1 Two tokens are shown on a game board. Across which axis would you reflect P to reach Q?



ANSWER _____

2 In a game, a player's score is at A. A bonus changes the score to its opposite. Which labeled point shows the new score?



ANSWER _____

CHALLENGE One step up

Start at (-5/2, 1/2). Reflect the point across the y-axis, then across the x-axis. Give its final coordinates and explain which sign changed at each step.

WORK SPACE AND ANSWER

ANSWER KEY

Signs and Sides

GRADE 6 · MT.6.NS.6

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What is the opposite of -5/2? What is the opposite of your answer?	**5/2; -5/2**
2	Reflect P(-2, 4) across the y-axis. Give its new coordinates.	**(2, 4)**
3	Reflect Q(1/2, -3) across the x-axis. Give its new coordinates.	**(1/2, 3)**
4	Which quadrant contains (-4, -1/2)?	**Quadrant III**

PART 2 · APPLY IT

1. **The y-axis** P and Q have opposite x-coordinates and the same y-coordinate, so they reflect across the y-axis.
2. **B** A is at -2. Its opposite is 2, which is labeled B.

CHALLENGE

(5/2, -1/2). Reflecting across the y-axis changes the sign of x. Reflecting across the x-axis changes the sign of y.

Accept equivalent fraction and decimal coordinates. For the challenge, the explanation must match each sign change to the correct axis.