LESSON MAKER PRO

Coordinate Mirror Moves

Use signs to locate and reflect points.

GRADE 6 · 6.NS.C.6b

CCSS.Math.Content.6.NS.C.6b "Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs..."

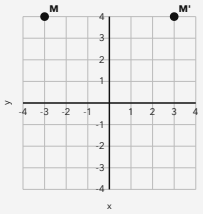
NAME _____ DATE _____

SIGNS SHOW LOCATION

Quadrant I has (+, +), Quadrant II has (-, +), Quadrant III has (-, -), and Quadrant IV has (+, -). Changing only the x-sign reflects a point across the y-axis, changing only the y-sign reflects it across both axes.

WORKED EXAMPLE

Use the graph. How are M and M' related?



1. M is at (-3, 4).
2. M' is at (3, 4).
3. The y-coordinate stays the same, and the x-sign changes.

Answer: M' is the reflection of M across the y-axis.

PRACTICE 4 problems

1 Which quadrant contains (-8, 6)?

ANSWER _____

2 Reflect (9, -5) across the y-axis.

ANSWER _____

3 Point P is at (-7, -9). Reflect P across both axes. Give the image and its quadrant.

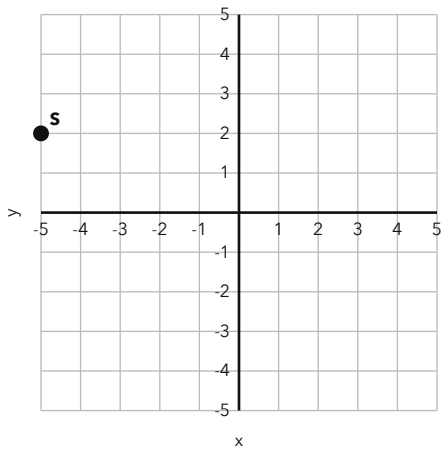
ANSWER _____

4 Q is (10, -6) and R is (-10, 6). Which reflection takes Q to R?

ANSWER _____

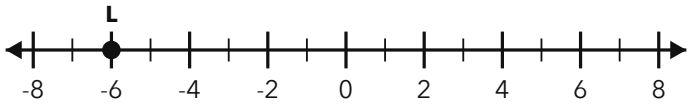
APPLY IT Show your work

1 On a game map, the safe zone is point S. Use the graph. A mirror safe zone is reflected across the x-axis. What is its location?



ANSWER _____

2 A stage-light app shows L's x-coordinate on the number line. Its y-coordinate is 1. Reflect L across the y-axis, then across the x-axis. Give the final coordinate and quadrant.



ANSWER _____

CHALLENGE One step up

Point T is in Quadrant II. After reflecting T across the y-axis and then the x-axis, its image is (11, -7). What were T's coordinates? Explain how the signs changed.

WORK SPACE AND ANSWER

ANSWER KEY

Coordinate Mirror Moves

GRADE 6 · 6.NS.C.6b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Which quadrant contains (-8, 6)?	**Quadrant II**
2	Reflect (9, -5) across the y-axis.	**(-9, -5)**
3	Point P is at (-7, -9). Reflect P across both axes. Give the image and its quadrant.	**(7, 9), Quadrant I**
4	Q is (10, -6) and R is (-10, 6). Which reflection takes Q to R?	**Reflect across both axes.**

PART 2 · APPLY IT

1. **(-5, -2)** S has the same x-coordinate after an x-axis reflection. Change the sign of its y-coordinate.
2. **(6, -1), Quadrant IV** L starts at (-6, 1). The y-axis reflection changes x to 6, and the x-axis reflection changes y to -1.

CHALLENGE

T was (-11, 7). Reflecting across both axes changes the sign of each coordinate.

Accept quadrant names or Roman numerals. For reflection descriptions, accept equivalent wording that correctly identifies the x-axis, y-axis, or both axes.