

Mirror Points

Use signs to locate and reflect points.

GRADE 6 • NY-6.NS.6.b

NY-6.NS.6.b "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 _____

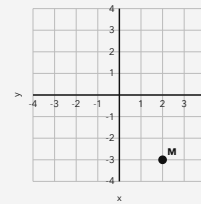
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SIGNS SHOW DIRECTION

A positive x-value is right of the y-axis, and a negative x-value is left. A positive y-value is above the x-axis, and a negative y-value is below. A reflection across an axis changes the sign of the coordinate that measures distance from that axis.

WORKED EXAMPLE

Point M is shown. Name its quadrant, then reflect M across the y-axis.



1. M is 2 units right and 3 units down.
2. Its coordinates are (2, -3).
3. Right and down is Quadrant IV.
4. A y-axis reflection changes the x-value's sign.

Answer: Quadrant IV; (-2, -3)

PRACTICE 4 problems

- 1** Name the quadrant of each point: A(-5, 4) and B(3, -2).

ANSWER _____

- 2** Reflect (6, -1) across the x-axis.

ANSWER _____

- 3** Reflect (-4, 5) across the y-axis.

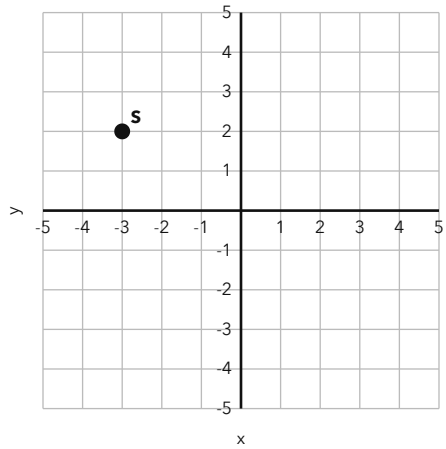
ANSWER _____

- 4** P(-7, -6) maps to Q(7, 6). Across which axis or axes was P reflected?

ANSWER _____

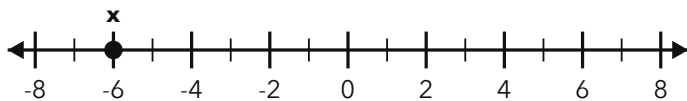
APPLY IT Show your work

- 1** A game shield is at point S on the design grid. Its matching shield is reflected across the y-axis. What are the matching shield's coordinates?



ANSWER _____

- 2** A robot's x-coordinate is shown. Its y-coordinate is -5. The robot is reflected across the y-axis. Write its new ordered pair.



ANSWER _____

CHALLENGE One step up

Point A(-8, 3) maps to point B(8, -3). Which reflection or reflections map A to B? Explain how the signs change.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Name the quadrant of each point: A(-5, 4) and B(3, -2).	A: Quadrant II; B: Quadrant IV
2	Reflect (6, -1) across the x-axis.	(6, 1)
3	Reflect (-4, 5) across the y-axis.	(4, 5)
4	P(-7, -6) maps to Q(7, 6). Across which axis or axes was P reflected?	both axes

PART 2 • APPLY IT

1. **(3, 2)** Point S is 3 units left and 2 units up. A y-axis reflection changes only the x-coordinate's sign.
2. **(6, -5)** The original point is (-6, -5). A reflection across the y-axis changes -6 to 6 and keeps -5.

CHALLENGE

Reflect across both axes. The x-coordinate changes from -8 to 8, and the y-coordinate changes from 3 to -3.

Accept quadrant names written as II, IV, or Quadrant II and Quadrant IV. Accept ordered pairs with or without spaces after commas.