LESSON MAKER PRO

Shape Shift

Track moves that make figures match.

GRADE 8 · 8.G.2

8.G.2 "Recognize through visual comparison that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures..."

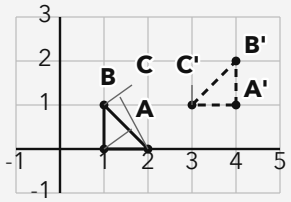
NAME _____ DATE _____

MOVES THAT MATCH

A translation slides a figure, a reflection flips it across a line, and a rotation turns it around a point. If these moves place every vertex on its matching vertex, the figures are congruent.

WORKED EXAMPLE

How can you move the solid triangle onto the dashed triangle?



1. Rotate 90° counterclockwise about the origin: A → (0, 1), B → (0, 2), C → (-1, 1).
2. Move 4 units right: A → A', B → B', C → C'.

Answer: Rotate 90° counterclockwise about the origin, then translate 4 units right.

PRACTICE 4 problems

1 Reflect M(4, 3) across the y-axis, then move 2 units down. Find M'.

ANSWER _____

2 Rotate N(-2, 4) 90° clockwise about the origin, then move 3 units left. Find N'.

ANSWER _____

3 A(3, -2) maps to A'(-3, 1). First reflect across the y-axis. What translation comes next?

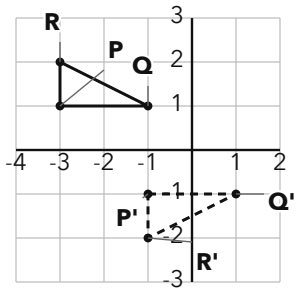
ANSWER _____

4 A(2, 3) and B(4, 3) map to A'(-2, -3) and B'(-4, -3). Name one move that maps both points.

ANSWER _____

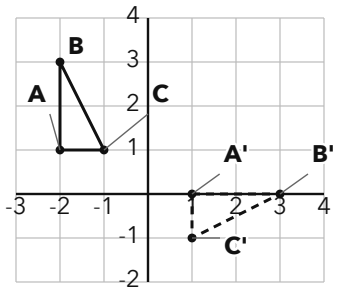
APPLY IT Show your work

1 A game artist repositions a badge. Name two moves, in order, that place the solid badge on the dashed badge.



ANSWER _____

2 A skater adjusts a board decal. Name two moves, in order, that place the solid decal on the dashed decal.



ANSWER _____

CHALLENGE One step up

Reflect any point (x, y) across the y-axis, then rotate it 180° about the origin. What single move has the same result? Explain using coordinates.

WORK SPACE AND ANSWER

ANSWER KEY # Shape Shift

GRADE 8 · 8.G.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Reflect M(4, 3) across the y-axis, then move 2 units down. Find M'.	**M'(-4, 1)**
2	Rotate N(-2, 4) 90° clockwise about the origin, then move 3 units left. Find N'.	**N'(1, 2)**
3	A(3, -2) maps to A'(-3, 1). First reflect across the y-axis. What translation comes next?	**Translate 3 units up.**
4	A(2, 3) and B(4, 3) map to A'(-2, -3) and B'(-4, -3). Name one move that maps both points.	**Rotate 180° about the origin.**

PART 2 · APPLY IT

1. **Reflect across the x-axis, then translate 2 units right.** The reflection changes each y-coordinate's sign. Moving 2 units right then places P, Q, and R on their matching vertices.
2. **Rotate 90° clockwise about the origin, then translate 2 units down.** The rotation sends A, B, and C to (1, 2), (3, 2), and (1, 1). Moving down 2 units places them on A', B', and C'.

CHALLENGE

Reflect across the x-axis. The two moves send (x, y) to (-x, y), then to (x, -y), which is the result of reflecting across the x-axis.

Accept any sequence that maps every labeled vertex to its matching vertex. The order of moves may differ from the listed answers.