LESSON MAKER PRO

Figure Move Match

Find the moves that match each figure to its image.

HIGH SCHOOL · GDA.GM.D.22.b

GDA.GM.D.22.b "Specify a sequence of rotations, reflections, or translations that will carry a given figure onto another."

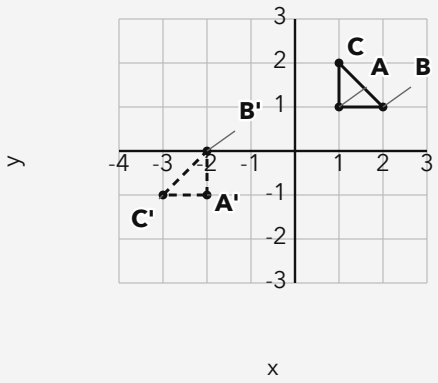
NAME _____ DATE _____

TRACK THE VERTICES

Apply moves in order, keeping the vertex labels matched. A 90° counterclockwise rotation about the origin changes (x, y) to (-y, x). A translation adds the same amounts to every vertex.

WORKED EXAMPLE

Name a rotation about the origin and a translation that take solid ABC onto dashed A'B'C'.



1. Rotate 90° counterclockwise: A(1, 1) moves to (-1, 1).
2. Translate left 1 and down 2: (-1, 1) moves to A'(-2, -1).
3. The same moves take B to B' and C to C'.

Answer: Rotate 90° counterclockwise about the origin, then translate left 1 and down 2.

PRACTICE 4 problems

1 Name the moves in order: (x, y) -> (-x, y) -> (-x + 3, y).

ANSWER _____

2 Name the moves in order: (x, y) -> (x, -y) -> (x, -y + 4).

ANSWER _____

3 Name the moves in order: (x, y) -> (-y, x) -> (-y, x - 5).

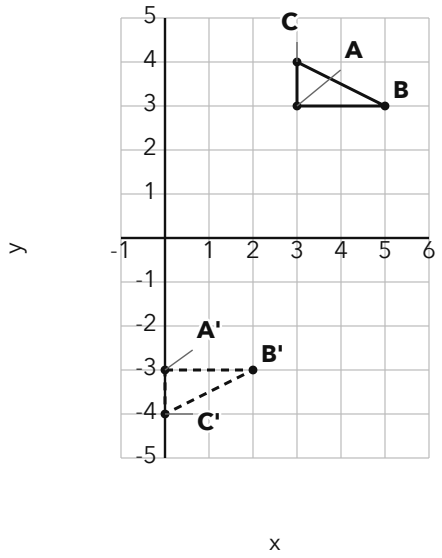
ANSWER _____

4 Name the moves in order: (x, y) -> (x + 6, y) -> (-x - 6, y).

ANSWER _____

APPLY IT Show your work

1 A designer moves a sticker from solid ABC to dashed A'B'C'. Name a reflection and a translation that do this.



ANSWER _____

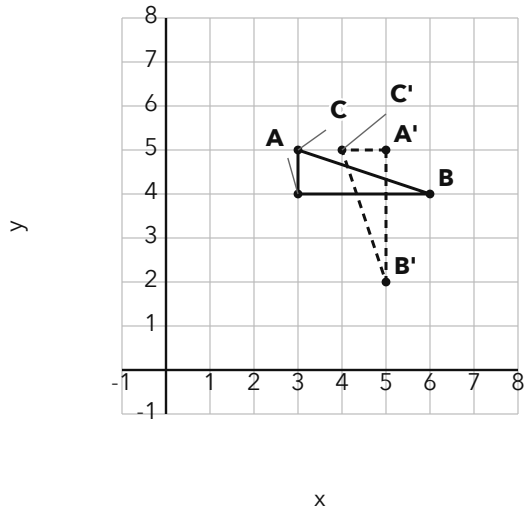
2 A game moves every point of a logo by (x, y) -> (y, -x) -> (y + 6, -x + 4). Name the two moves.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Rotate solid ABC 90° clockwise about the origin, reflect over the y-axis, then translate to dashed A'B'C'. Find the translation and track A.



WORK SPACE AND ANSWER

ANSWER KEY

Figure Move Match

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Name the moves in order: (x, y) -> (-x, y) -> (-x + 3, y).	**Reflect over the y-axis, then translate right 3.**
2	Name the moves in order: (x, y) -> (x, -y) -> (x, -y + 4).	**Reflect over the x-axis, then translate up 4.**
3	Name the moves in order: (x, y) -> (-y, x) -> (-y, x - 5).	**Rotate 90° counterclockwise about the origin, then translate down 5.**
4	Name the moves in order: (x, y) -> (x + 6, y) -> (-x - 6, y).	**Translate right 6, then reflect over the y-axis.**

PART 2 · APPLY IT

1. **Reflect over the x-axis, then translate left 3.** Reflection changes each y-coordinate's sign. Moving left 3 then matches all three labeled vertices.
2. **Rotate 90° clockwise about the origin, then translate right 6 and up 4.** The first rule is a clockwise quarter-turn. The second adds 6 to each x-coordinate and 4 to each y-coordinate.

CHALLENGE

Translate right 9 and up 8. A(3, 4) -> (4, -3) -> (-4, -3) -> A'(5, 5).

Accept any equivalent sequence when the moves are not prescribed, provided it maps every labeled vertex correctly. In the challenge, the rotation and reflection must occur in the stated order.