LESSON MAKER PRO

Coordinate Move Lab

Track one transformation at a time.

GRADE 8 · MA.8.GR.2.3

MA.8.GR.2.3 "Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane."

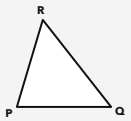
NAME _____ DATE _____

TRANSFORMATION RULE

A single transformation follows one rule for every point of a figure. For a reflection across the y-axis, change the sign of each x-coordinate and keep each y-coordinate the same.

WORKED EXAMPLE

The triangle shown has P(6,7), Q(8,7), and R(7,9). Reflect it across the y-axis. Find P', Q', and R'.



1. Use (x,y) -> (-x,y).
2. P(6,7) -> P'(-6,7).
3. Q(8,7) -> Q'(-8,7).
4. R(7,9) -> R'(-7,9).

Answer: P'(-6,7), Q'(-8,7), R'(-7,9)

PRACTICE 4 problems

1 Triangle ABC has A(-2,1), B(2,1), and C(0,4). Translate it by (x,y) -> (x+3,y-2). Find A', B', and C'.

ANSWER _____

2 Point J(-3,2) rotates 90° clockwise about the origin. Find J'.

ANSWER _____

3 Segment KL has K(-5,-4) and L(3,-1). Reflect it across the x-axis. Find K' and L'.

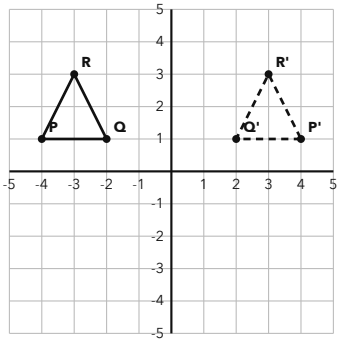
ANSWER _____

4 Triangle HIJ has H(-2,1), I(1,-2), and J(2,5). Dilate it from the origin with scale factor 2. Find H', I', and J'.

ANSWER _____

APPLY IT Show your work

1 An esports team uses the solid triangle for a logo and the dashed triangle for its screen copy. What single transformation maps solid PQR to dashed P'Q'R'?



ANSWER _____

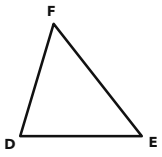
2 In coding club, a sprite triangle has A(-1,-3), B(2,-3), and C(0,-1). A command translates every point by (x,y) -> (x+3,y+5). What are A', B', and C'?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Triangle DEF is shown. A transformation maps D(-5,2), E(-1,2), and F(-3,5) to D'(5,2), E'(1,2), and F'(3,5). Name the transformation and explain how the coordinates prove it.



WORK SPACE AND ANSWER

ANSWER KEY

Coordinate Move Lab

GRADE 8 · MA.8.GR.2.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Triangle ABC has A(-2,1), B(2,1), and C(0,4). Translate it by (x,y) -> (x+3,y-2). Find A', B', and C'.	**A'(1,-1), B'(5,-1), C'(3,2)**
2	Point J(-3,2) rotates 90° clockwise about the origin. Find J'.	**J'(2,3)**
3	Segment KL has K(-5,-4) and L(3,-1). Reflect it across the x-axis. Find K' and L'.	**K'(-5,4), L'(3,1)**
4	Triangle HIJ has H(-2,1), I(1,-2), and J(2,5). Dilate it from the origin with scale factor 2. Find H', I', and J'.	**H'(-4,2), I'(2,-4), J'(4,10)**

PART 2 · APPLY IT

1. **Reflection across the y-axis.** Each dashed point has the opposite x-coordinate of its solid point. The y-coordinates stay the same.
2. **A'(2,2), B'(5,2), C'(3,4)** Add 3 to each x-coordinate and add 5 to each y-coordinate.

CHALLENGE

Reflection across the y-axis. Each x-coordinate changes sign, and each y-coordinate stays the same.

Accept ordered-coordinate answers with equivalent formatting. For the challenge, accept any explanation that states that x-values become opposites while y-values remain unchanged.