LESSON MAKER PRO

Move the Shape

Track figures across the coordinate plane.

GRADE 8 · MT.8.G.3

MT.8.G.3 "Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities."

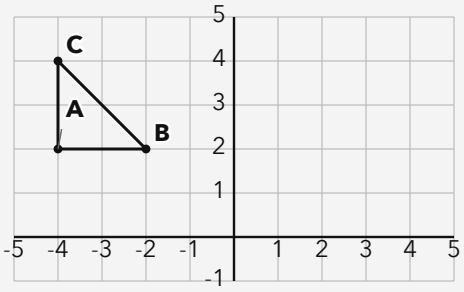
NAME _____ DATE _____

COORDINATE MOVES

A transformation moves or resizes a figure. Apply its coordinate rule to every vertex, then list the new vertices in the same order.

WORKED EXAMPLE

Reflect the triangle across the y-axis. Give the new coordinates.



1. A reflection across the y-axis changes (x, y) to (-x, y).
2. Change each x-coordinate and keep each y-coordinate.

Answer: A′(4, 2), B′(2, 2), C′(4, 4)

PRACTICE 4 problems

1 Translate A(1, 3), B(3, 3), and C(1, 5) left 6 and down 1. Give A′, B′, and C′.

ANSWER _____

2 Reflect P(-3, 1) and Q(-1, 5) across the x-axis. Give P′ and Q′.

ANSWER _____

3 Rotate F(1, -1), G(5, -1), and H(1, -3) 90° clockwise about the origin. Give F′, G′, and H′.

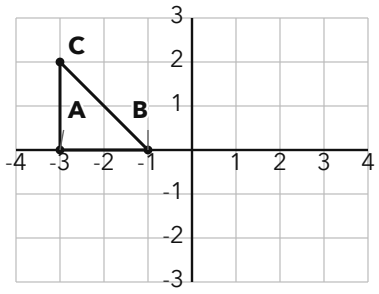
ANSWER _____

4 Dilate J(-6, 6), K(-2, 6), and L(-6, 2) by a factor of 1/2 about the origin. Give J′, K′, and L′.

ANSWER _____

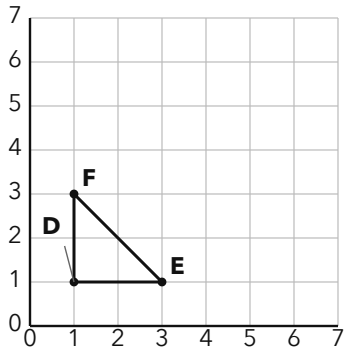
APPLY IT Show your work

1 Students are placing this icon on a digital poster for Montana Indigenous Peoples Day. Move it right 4 and down 1. Where will its vertices be?



ANSWER _____

2 A Montana community center is making a digital banner for an Indigenous language class. Enlarge this icon by a factor of 2 about the origin. Where will its vertices be?



ANSWER _____

CHALLENGE One step up

Reflect M(-5, 1), N(-1, 1), and O(-5, 3) across the x-axis, then rotate the result 90° counterclockwise about the origin. Give the final coordinates and name one reflection that has the same effect.

WORK SPACE AND ANSWER

ANSWER KEY

Move the Shape

GRADE 8 · MT.8.G.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Translate A(1, 3), B(3, 3), and C(1, 5) left 6 and down 1. Give A′, B′, and C′.	**A′(-5, 2), B′(-3, 2), C′(-5, 4)**
2	Reflect P(-3, 1) and Q(-1, 5) across the x-axis. Give P′ and Q′.	**P′(-3, -1), Q′(-1, -5)**
3	Rotate F(1, -1), G(5, -1), and H(1, -3) 90° clockwise about the origin. Give F′, G′, and H′.	**F′(-1, -1), G′(-1, -5), H′(-3, -1)**
4	Dilate J(-6, 6), K(-2, 6), and L(-6, 2) by a factor of 1/2 about the origin. Give J′, K′, and L′.	**J′(-3, 3), K′(-1, 3), L′(-3, 1)**

PART 2 · APPLY IT

1. **A′(1, -1), B′(3, -1), C′(1, 1)** Add 4 to each x-coordinate and subtract 1 from each y-coordinate.
2. **D′(2, 2), E′(6, 2), F′(2, 6)** Multiply both coordinates of each vertex by 2.

CHALLENGE

M′(1, -5), N′(1, -1), O′(3, -5). A reflection across the line y = x has the same effect.

Accept coordinates listed in a different order if each label matches its correct point. In the challenge, the two moves together change (x, y) to (y, x).