

Unit 1

Lesson 7

Composition of Transformations

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Unit 1 – Geometric Transformations

Date _____ Pd _____

Lesson 7 – Compositions of Transformations

A **composition** is a sequence of transformations.
 An example of a composition is a **glide reflection** since it is the composition of a reflection and a translation.

➤ Composition of Motions with Algebraic Rules

Using your algebraic rules, write a new rule after both transformations have taken place.

1) Translate a triangle 4 units right and 2 units up, and then reflect the triangle over the line $y = x$.

$$(x, y) \rightarrow (x+4, y+2) \rightarrow (y+2, x+4)$$

2) Rotate a triangle 90 degrees counterclockwise, and then dilate the figure by a scale factor of 3.

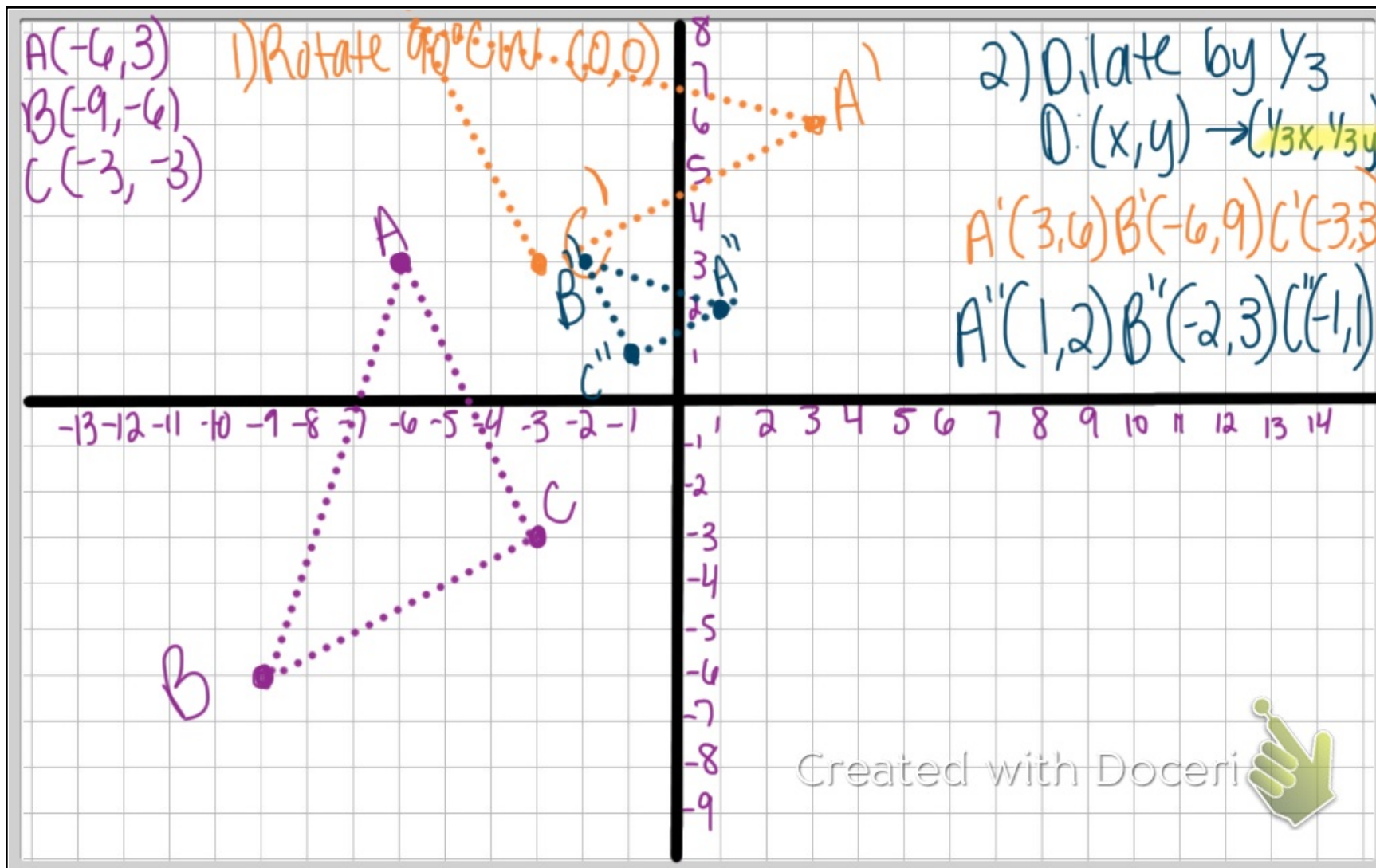
3) Translate a triangle 4 units left and 2 units down, and then reflect the triangle over the y -axis.

4) Rotate a triangle 90 degrees clockwise, and then dilate the figure by a scale factor of $\frac{1}{3}$.

$$A(-6, 3) \quad B(-9, 6) \quad C(-3, 3)$$

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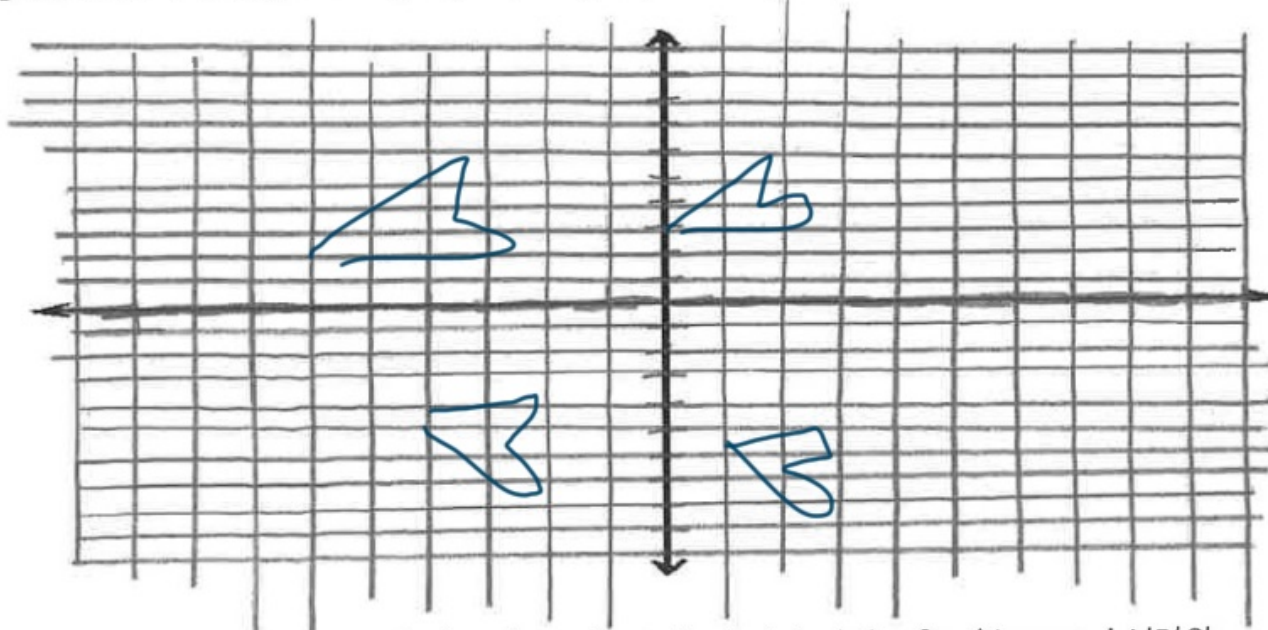


- 5) Translate a triangle 4 units right and 2 units down, and then reflect the triangle over the $x - axis$.
- 6) Rotate a triangle 180 degrees counterclockwise, and then dilate the figure by a scale factor of 2.
- 7) Translate a triangle 4 units left and 2 units up, and then reflect the triangle over the line $y = x$.
- 8) Rotate a triangle 180 degrees clockwise, and then dilate the figure by a scale factor of $\frac{1}{2}$.

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a. On a coordinate grid, draw a triangle using $A(-9, -2)$, $B(-6, -1)$, $C(-6, -3)$ to represent a duck foot



b. Transform ΔABC using R_{x-axis} , followed by $T: (x, y) \rightarrow (x + 5, y)$. Label the final image $\Delta A'B'C'$.

c. Write a coordinate rule for this composite transformation.

d. Now apply the coordinate rule you gave in Part c two more times to $\Delta A'B'C'$.

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Page 14, 15, 16
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D/C corresponding anchor points are equidistant from the line of reflection as proven with right Δ s & the Pythagorean Theorem, AND they both lie along a line with opposite reciprocal slope (perpendicular) to the given line of reflection

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HW Teacher Packet

Page 32-33

All pg 32 except Algebraic Rules

pg 33 13 + 14
except algebraic Rules

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