Name: Key Date: ________ Period: A B C D E F

Module 1: Topic 2 Lesson 3 Assignment—From Here to There

VOCABULARY----*For questions 1-2, complete the following sentences with the correct term. Use your book to help you.*

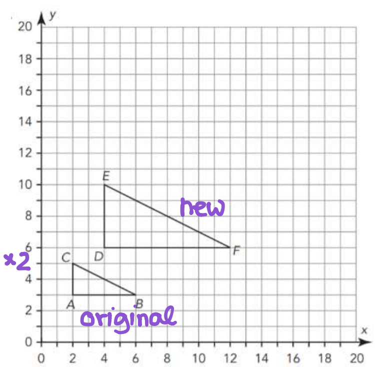
1. When you dilate a figure, you create a Similar figure. When two figures are similar, the ratios of their corresponding side lengths are equal. *(page M1-117)*

2. Figures are congruent if they have their corresponding side lengths and corresponding angles are the same measure.

PRACTICE----*For questions 1-2, Verify that the two figures are similar by describing a dilation that maps one figure onto the other. Be to include the scale factor, and write corresponding sides used to determine scale factor.*

1. ΔABC is mapped onto ΔDEF

A(2,3)
D(4,6) ×2



This is a/an:

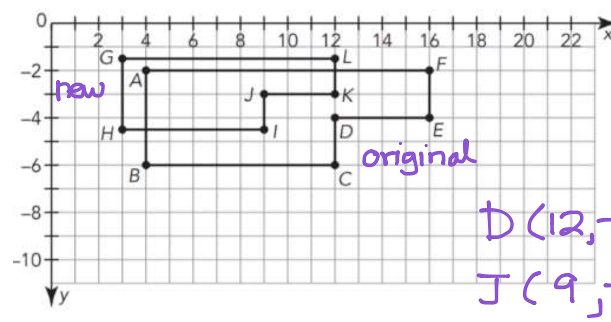
Enlargement or Reduction

I know this because: The new figure is bigger than the original

Scale Factor: 2

2.

HEXAGON ABCDEF is mapped onto **HEXAGON GHIJKL**



D(12,-4)
J(9,-3)

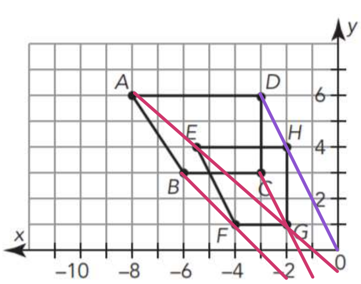
This is a/an:

Enlargement or Reduction $\frac{9}{12}$

I know this because: The new figure is smaller than the original.

Scale Factor: $\frac{9}{12} = \frac{3}{4}$

3. How do can you tell that these two figures are not similar figures?



The two figures have different points for the center of dilation.

4. Use the coordinates of the pre-image to determine how the triangle was dilated.

Pre-image	Image
X (7, 2)	X' (35, 10)
Y (3,-5)	Y' (15, -25)
Z (-6, 0) ×5	Z' (-30, 0)

Scale Factor: 5

5. Use the coordinates of the pre-image to determine how the triangle was dilated.

Pre-image	Image
A (15, 3)	A' (5, 1)
B (-21,0) ÷3	B' (-7, 0)
C (-6, 18)	C' (-2, 6)

Scale Factor: $\frac{1}{3}$

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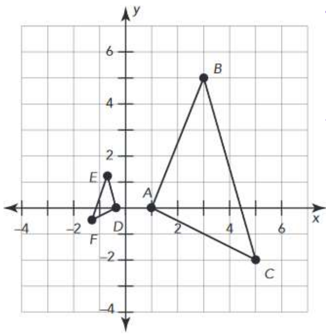
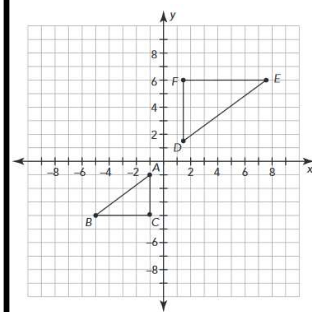
.#6-9 Verify that the figures are similar by describing a sequence of transformations that map Triangle ABC onto Triangle DEF. Be specific.

6.



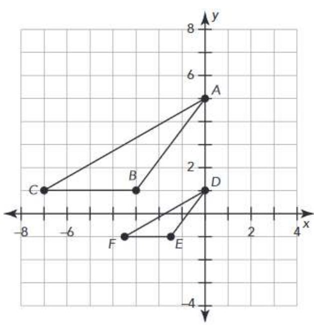
- Reflect over y-axis
- Dilate by a scale factor of $\frac{1}{4}$

7.



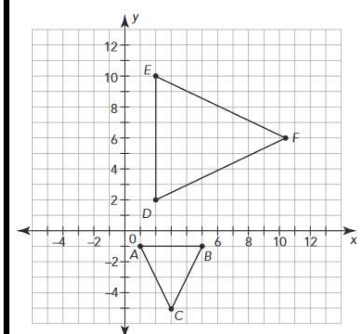
- Rotate 180°
- Dilate by a scale factor of $\frac{3}{2}$

8.



- Translate down 3
- Dilate by a scale factor of $\frac{1}{2}$

9.



- Rotate 90° counterclockwise
- Dilate by a scale factor of 2

REVIEW-- Without graphing, give the coordinates of A'B'C' after a transformation of ABC with the coordinate **A (6, -3), B (9, 5), and C (5, 6)**. Use the origin as the center of dilation or rotation, as needed.

a. Dilate Δ ABC by a scale factor of 1/3.

Pre-Image	Image
A (6, -3)	A' (2, -1)
B (9, 5)	B' (3, $\frac{5}{3}$)
C (5, 6)	C' ($\frac{5}{3}$, 2)

Rule: $(x, y) \rightarrow (\frac{x}{3}, \frac{y}{3})$

b. Dilate Δ ABC by a scale factor of 4.

Pre-Image	Image
A (6, -3)	A' (24, -12)
B (9, 5)	B' (36, 20)
C (5, 6)	C' (20, 24)

Rule: $(x, y) \rightarrow (4x, 4y)$

c. Rotate ΔABC 180 degrees.

Pre-Image	Image
A (6, -3)	A' (-6, 3)
B (9, 5)	B' (-9, -5)
C (5, 6)	C' (-5, -6)

Rule: $(x, y) \rightarrow (-x, -y)$

d. Rotate ΔABC 90 degrees counterclockwise.

Pre-Image	Image
A (6, -3)	A' (3, 6)
B (9, 5)	B' (-5, 9)
C (5, 6)	C' (-6, 5)

Rule: $(x, y) \rightarrow (-y, x)$

Δ

e. Rotate Δ ABC 90 degrees clockwise.

Pre-Image	Image
A (6, -3)	A' (-3, -6)
B (9, 5)	B' (5, -9)
C (5, 6)	C' (6, -5)

Rule: $(x, y) \rightarrow (y, -x)$

f. Reflect Δ ABC across the x-axis.

Pre-Image	Image
A (6, -3)	A' (6, 3)
B (9, 5)	B' (9, -5)
C (5, 6)	C' (5, -6)

Rule: $(x, y) \rightarrow (x, -y)$

g. Reflect ΔABC across the y-axis.

Pre-Image	Image
A (6, -3)	A' (-6, -3)
B (9, 5)	B' (-9, 5)
C (5, 6)	C' (-5, 6)

Rule: $(x, y) \rightarrow (-x, y)$

h. Translate Δ ABC (x+3, y-4)

Pre-Image	Image
A (6, -3)	A' (9, -7)
B (9, 5)	B' (12, 1)
C (5, 6)	C' (8, 2)

Rule: $(x, y) \rightarrow (x+3, y-4)$

Δ