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

Assessment Review: Module 1 Topic 2 – Similarity

1 Triangle *DEF* has vertices *D*(-4, 1), *E*(2, 3), and *F*(2, 1) and is dilated by a factor of 3 using the origin as the point of dilation. The dilated triangle is named $\Delta D'E'F'$. What are the coordinates of the vertices of the resulting triangle? Write the rule for this dilation below. ×3

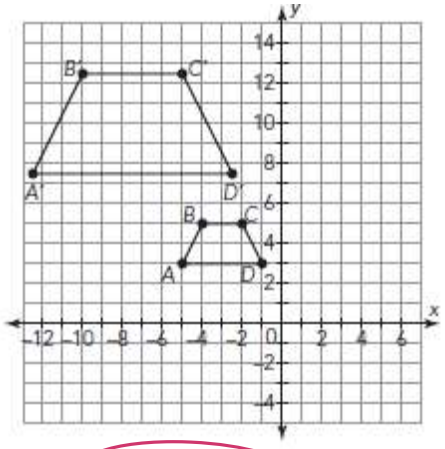
D' (-12, 3)

E' (6, 9)

F' (6, 3)

Rule: (X, Y)----> (3X, 3Y)

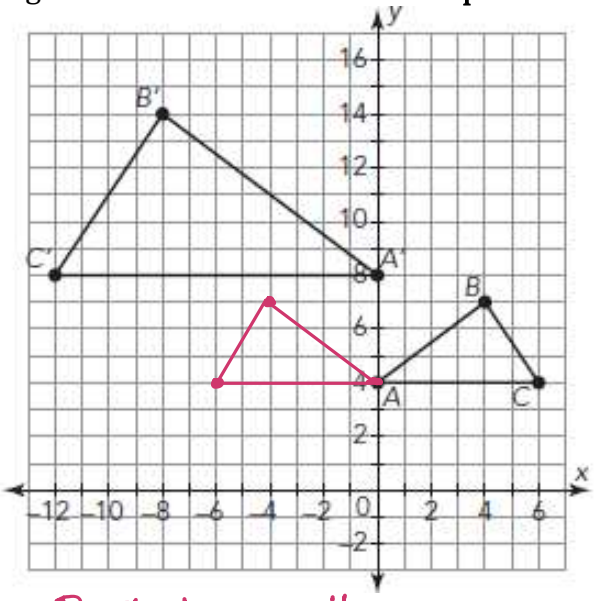
2 Trapezoid ABCD is dilated to form trapezoid A'B'C'D'. **Without calculating the scale factor**, explain if the dilation is an enlargement or reduction and how you know this.



Circle one: (Enlargement) Reduction

I know this because The image is larger than the pre-image.

3 *Describe* a sequence of transformations that exhibits the similarity between the pair of figures shown. **Remember to be specific.**



1) Reflect over the y-axis

2) Dilate by a scale factor of 2.

4 Triangle *ABC* is dilated to produce triangle *A'B'C'* with scale factor ¾. Which describes the relationship between the two triangles. Circle one below:

a. $\Delta A'B'C'$ is an enlargement of ΔABC.

(b.) $\Delta A'B'C'$ is a reduction of ΔABC.

c. $\Delta A'B'C' \cong \Delta ABC$

d. $\Delta A'B'C'$ is a mirror image of ΔABC.

Write the rule for the dilation described above:

Rule: (X, Y)----> $(\frac{3}{4}X, \frac{3}{4}Y)$

5 Which must be *true* of a scale factor of a dilation if the image is smaller than the original figure?

a. The scale factor is negative.
b. The scale factor is between -1 and 0.
c. The scale factor is between 0 and 1.
d. The scale factor is positive.

6 Triangle *FUN*, with vertices *F*(-6, 9), *U*(0, -6), and *N*(-3, -12) was dilated to form triangle *PET* with vertices *P*(-4, 6), *E*(0, -4), and *T*(-2, -8). What is the scale factor for this dilation?

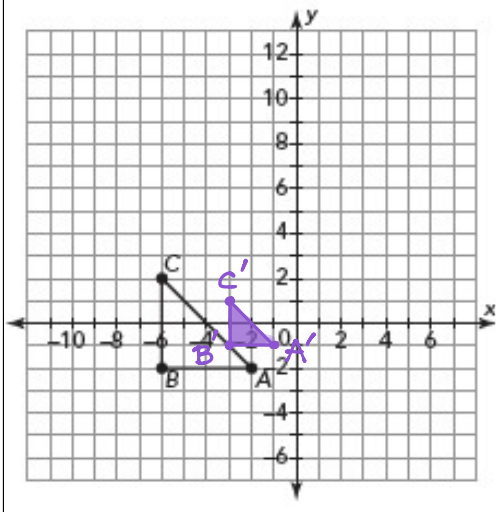
Scale factor: $\frac{6}{9} = \frac{2}{3}$

This dilation is a(n):

Circle one: Enlargement (Reduction)

7 Triangle ABC has vertices with coordinates A(-2, -2), B(-6, -2), and C(-6, 2).

a. Dilate ΔABC on the coordinate plane using the origin as the center of dilation and a scale factor of ½ to form ΔA'B'C'.



b. What are the coordinates of A', B', and C'?

A' (-1, -1) B' (-3, -1) C' (-3, 1)

c. How did you determine the coordinates of the vertices of the dilated image?

The original coordinates were divided by 2.

d. Is the dilation an enlargement or a reduction? Explain your reasoning.

The dilation is a reduction. The image is smaller figure.

e. What is the relationship between Δ*ABC* and ΔA'B'C'?

The two triangles are similar.

8 Determine whether the statements are **sometimes**, **always**, or **never true**.

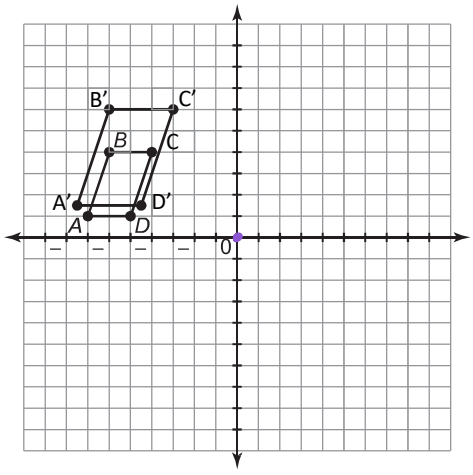
a. The angles of dilated figures are congruent to the original figure. Always

b. The shape of dilated figures are the same. Always

c. The size of dilated figures are the same. Sometimes

d. Dilations can be enlargements of the original figure. Sometimes

e. Dilations can be reductions of the original figure. Sometimes.

9	A shape is dilated with the center of dilation as the origin. Point M is on the shape and M' is the corresponding point on the image of the dilation. Point M is at (-3, 5) and M' is (-6, 10). What is the scale factor and how do you know? M (-3, 5) ---> M' (-6, 10) Scale factor: 2 This dilation is a(n): **Circle one**: (Enlargement) Reduction
10	Parallelogram ABCD is transformed to create parallelogram A'B'C'D'. Which of the following shows the sequence of transformations needed to create A'B'C'D'.  A. Dilation by a factor of $\frac{3}{2}$ about the origin and a translation of 3 units right. B. Dilation by a factor of $\frac{2}{3}$ about the origin and a translation 3 units right. C. Dilation by a factor of $\frac{3}{2}$ about the origin and a translation 3 units left. D. Dilation by a factor of $\frac{2}{3}$ about the origin and a translation 3 units left.

11 Dilate Triangle **ABC** on the coordinate plane using point **the origin** as the center of dilation and a scale factor of 3. **Draw and label**.

A (2, 1) ---> A' (6, 3)

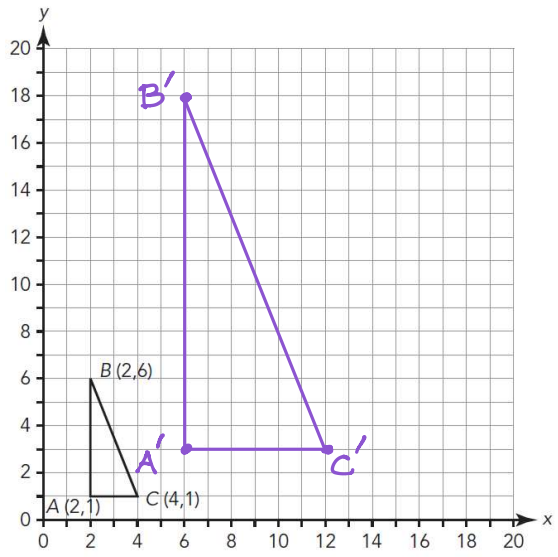
B (2, 6) ---> B' (6, 18)

C (4, 1) ---> C' (12, 3)

This dilation is a(n):

Circle one: (Enlargement) Reduction

Rule: (X, Y)----> (3x, 3y)



12 Determine the scale factor of each dilation.

a) A (7, -3) ----> A' (35, -15) Scale factor: 5

b) M (-14, -8) ----> M' (-7, -4) Scale factor: 1/2

c) Z (-12, 4) ----> Z' (-18, 6) $\frac{6}{4}$ Scale factor: 3/2

d) Q (0, 12) ----> Q' (0, 6) Scale factor: 1/2

e) R (-7, 5) ----> R' (-21, 15) Scale factor: 3

f) P (-24, -16) ----> P' (-6, -4) Scale factor: 1/4