**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**M8-U2/3: Notes #6 – Dilations Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Dilation** - transformation that produces an image that is the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** as the original but **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.

* A dilation is \_\_\_\_\_\_\_\_\_\_\_\_\_ to the original figure.
* Dilations are centered around the origin (0, 0), unless otherwise stated.

**Scale factor** – is , which is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* If the scale factor is greater than 1, the figure becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* If the scale factor is between 0 and 1, the figure becomes \_\_\_\_\_\_\_\_\_\_\_\_.

**Rule:** where *f* represents the scale factor.

**Example 1:**

Triangle *ABC* has vertices *A* (0, 2), *B* (4, 4), and *C* (-1, 4).



What are the vertices of its *image* with a scale factor of 2?

*A’* ( )

*B’*

*C’*

What is the rule for this dilation?



Graph the triangle and its image.

**Try it:**

Triangle *XYZ* has vertices *X* (0, -2), *Y* (-1, 2), and *Z* (2, 2).

What are the vertices of its *image* with a scale factor of 3?

*X’* ( )

*Y’*

*Z’*

What is the rule for this dilation?

Graph the triangle and its image.

**Example 2:**

Quadrilateral *PQRS* has vertices *P* (-2, 4), *Q* (4, 4), *R* (4, -2), and

*S* (- 4, - 4). It is dilated by a scale factor of ½.

What are the coordinates of the image?

Graph the quadrilateral and its image.

**Try It:** Quadrilateral *ABCD* has vertices *A* (-6, 3), *B* (3, 3), *C* (3, -3), and D(- 6, - 6).

It is dilated by a scale factor of 1/3



What are the coordinates of the image?

Graph the quadrilateral and its image.

**PRACTICE:**

1. If a scale factor is , how would you write the general rule?

Is this an enlargement or a reduction?

1. Quadrilateral *A’B’C’D’* is a dilation of quadrilateral *ABCD.* Find the scale factor. Classify the dilation as an enlargement or a reduction.



1. Triangle *XYZ* is graphed below.

Draw and label Triangle *X’Y’Z’* after a dilation using a scale factor of two.





*Y*

*Z*