Name_____ Date_____

9.6 – Dilations

In this assignment, you need to use the sketch located at my website for **9.6 - Dilations (NEW GEOGEBRA)**

Investigation 1 – Dilation – Scale Factor of 2

1) Draw the Quad. ABCD on the coordinate plane. Write the coordinates of the pre-image (original) below.

2) Slide the **Scale Factor** slider so the scale factor is now **2**. Draw the Quad. A'B'C'D' on the coordinate plane. Write the coordinates of the image (new shape) below.
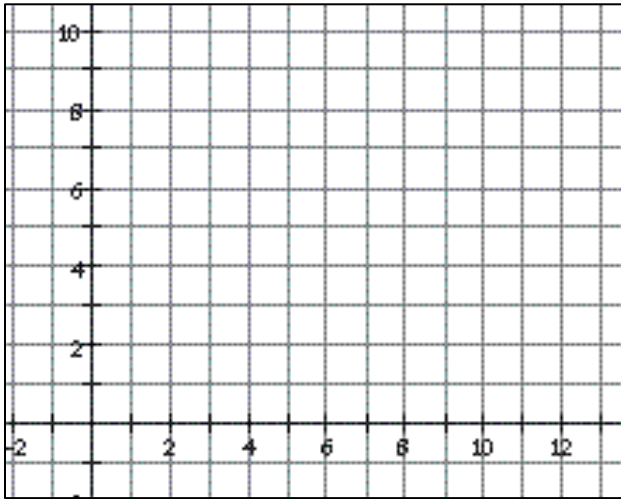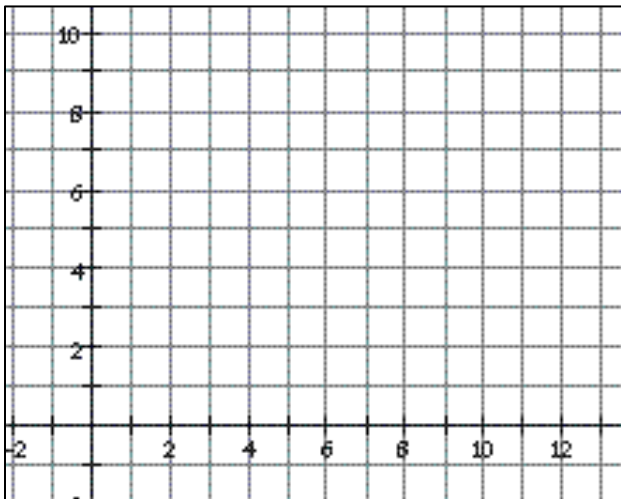
A (,   ), B (,   ), C (,   ), D (,   )

A'(,   ), B'(,   ), C'(,   ), D'(,   )

3) What do you believe is the connection between the SCALE FACTOR and the coordinates of the image?

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Investigation 2 – Dilation – Scale Factor of .5

4) Draw the Quad. ABCD on the coordinate plane. Write the coordinates of the pre-image (original) below.

5) Slide the **Scale Factor** slider so the scale factor is now **0.5**. Draw the Quad. A'B'C'D' on the coordinate plane. Write the coordinates of the image (new shape) below.

A (,   ), B (,   ), C (,   ), D (,   )

A'(,   ), B'(,   ), C'(,   ), D'(,   )

6) What do you believe is the connection between the SCALE FACTOR and the coordinates of the image?

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Predicting coordinates using scale factor

7) If the coordinates of ΔABC were A(5, 1), B(6, 4), & C(7, 2),

    a) What would you predict would be the coordinates of the image ΔA'B'C' if you dilated it "in the origin" by a scale factor of 3?

    b) Is the dilation an enlargement or reduction?

8) If the coordinates of a ΔDEF were D(6, 5), E(12, 10), & F(4, 9),

    a) What would you predict would be the coordinates of the image ΔD'E'F' if you dilated it "in the origin" by a scale factor of $\frac{1}{2}$?

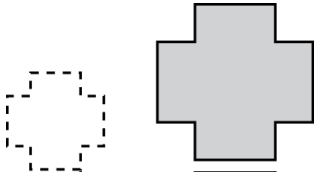   b) Is the dilation an enlargement or reduction?

What about those dilation lines and the origin?
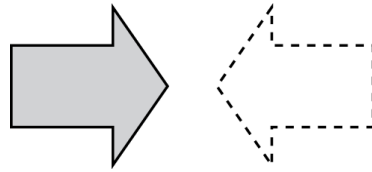
On the sketch, "*9.6 - Dilations (NEW GEOGEBRA)* ",

9) What do you believe is the purpose of those blue *dilation lines*? What is their relation to the original and the images?

10) Where do all of the lines of dilation cross?

Tell whether the dashed figure is a dilation of the solid figure.
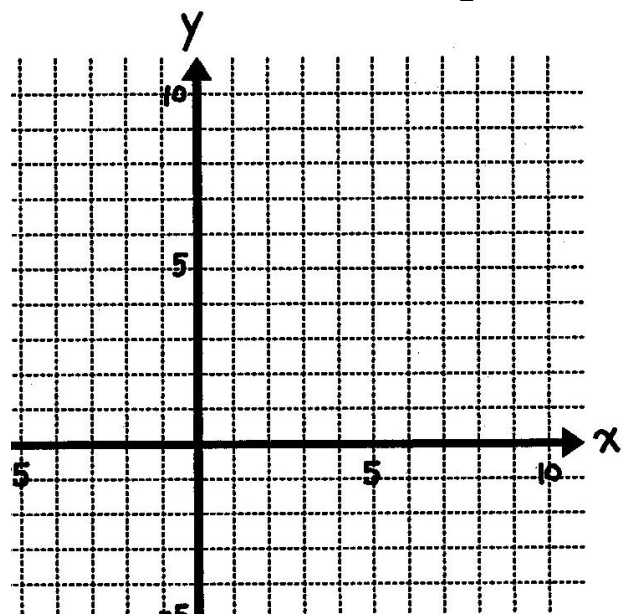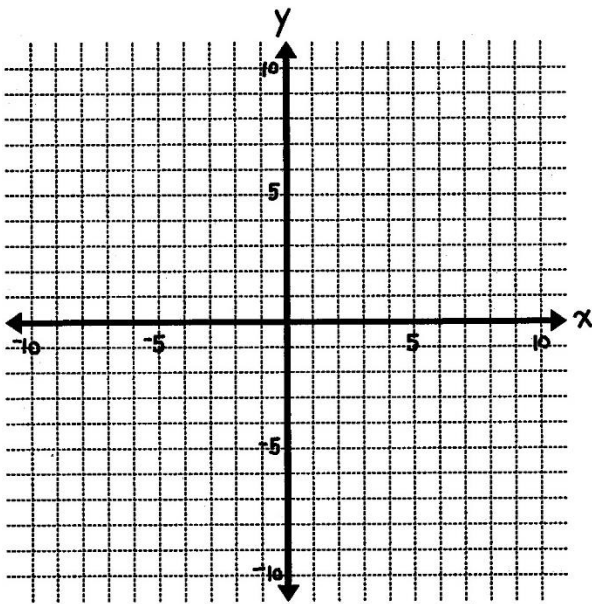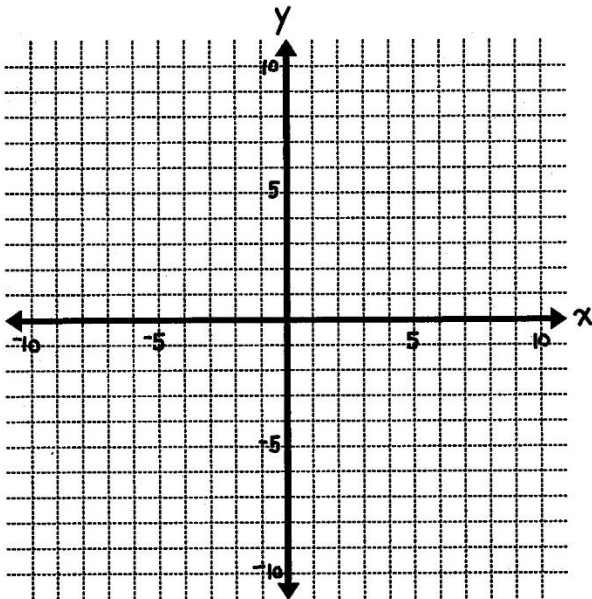
11)

12)

The vertices of a figure are given. Draw the figure above **AND** its image after a dilation with the given scale factor of k. **Identify** the type of dilation.

13) $D(1, 2), E(2, 1), F(1, -3), G(-3, -2); k = 3$

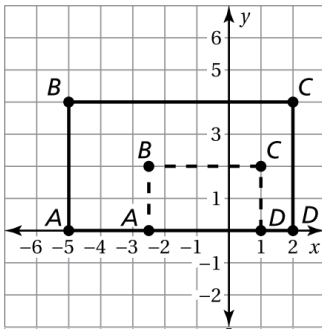14) $A(-3, -2), B(2, 4), C(8, 1); k = \dfrac{1}{2}$

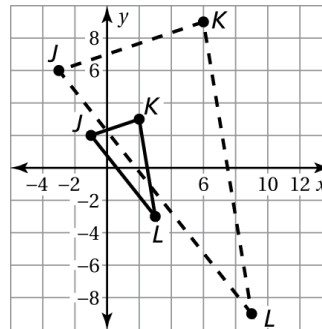15) $P(1, 2), Q(2, 2), R(4, -2), S(-1, -3); k = 2$

The dashed figure is a dilation of the solid figure. Identify the type of dilation and *find the scale factor*.
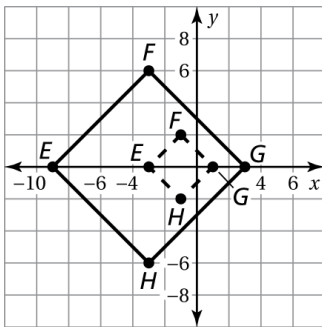
16)

17)

18)

19)