Name_____ Date_____

2.7 – Dilations

In this assignment, you need to use the sketch named: "*Dilations*". Make sure you pay very close attention to the directions and questions. Remember to stay on task on this assignment.

Investigation 1 – Dilation – Scale Factor of 2

1) Draw ΔABC on the coordinate plane.

2) Press the button "*Show Dilation – Scale Factor 2*". Draw the new triangle ΔA'B'C' on the coordinate plane.
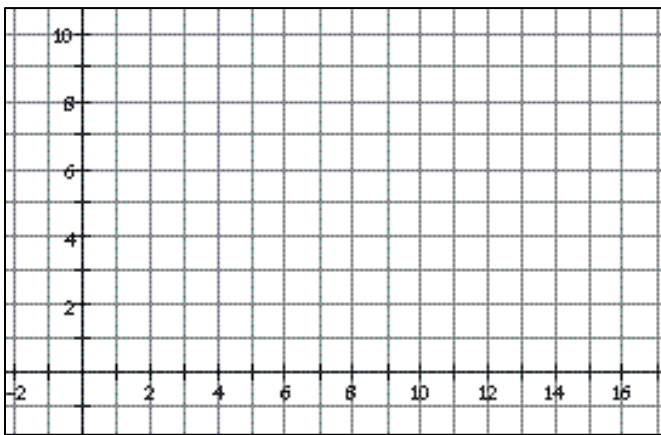
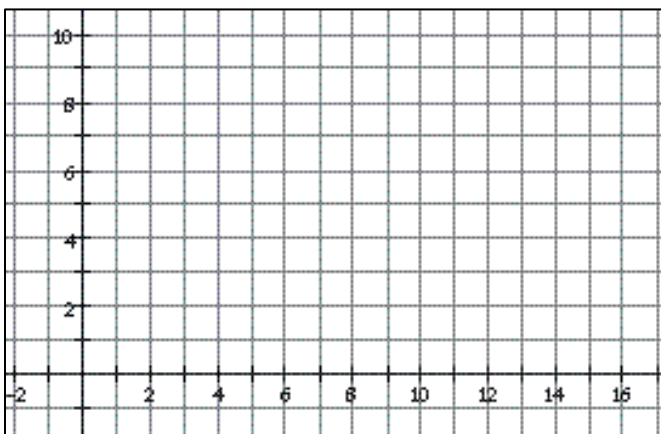3) Write the coordinates of the pre-image below:
   A (,   ), B (,   ), C (,   )

4) Write the coordinates of the image below:
   A' (,   ), B' (,   ), C" (,   )

5) What do you believe is the connection between the SCALE FACTOR of **2** and the coordinates of the image?

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6) Afterwards, press the button "*Hide Dilation – Scale Factor 2*".

Investigation 2 – Dilation – Scale Factor of .5

7) Draw again ΔABC on the coordinate plane.

8) Press the button "*Show Dilation – Scale Factor .5*". Draw the new triangle ΔA'B'C' on the coordinate plane.

9) Write the coordinates of the pre-image below:
   A (,   ), B (,   ), C (,   )

10) Write the coordinates of the image below:
   A' (,   ), B' (,   ), C" (,   )

11) What do you believe is the connection between the SCALE FACTOR of **.5** and the coordinates of the image?

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_____

12) Afterwards, press the button "*Hide Dilation – Scale Factor .5*".

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?

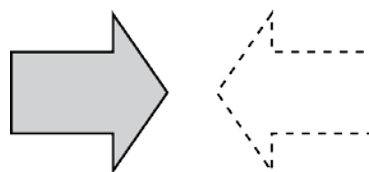On the sketch "*DilationsD2*", show all the dilated shapes. Afterwards, press the button "Show Dilation Lines".

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

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

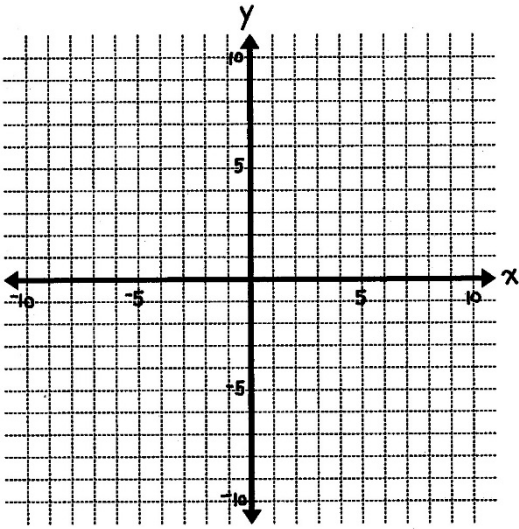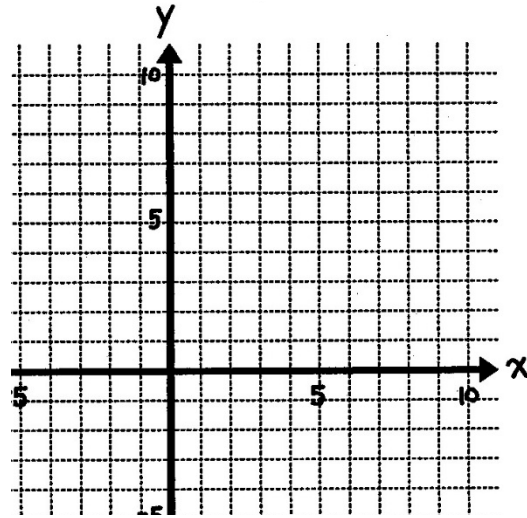Tell whether the dashed figure is a dilation of the solid figure.

11)
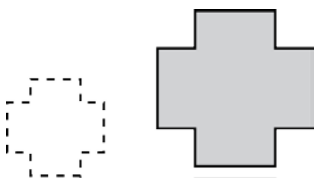
12)

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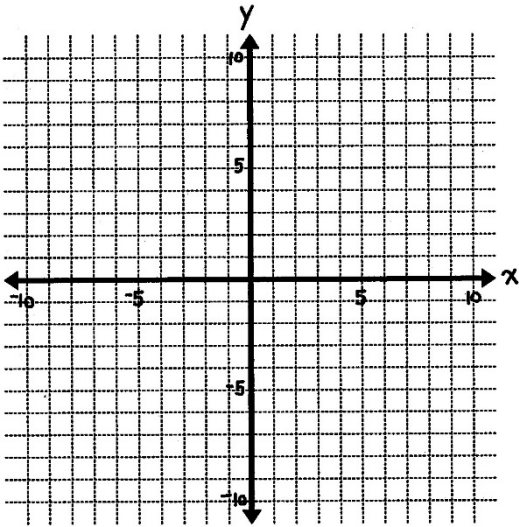
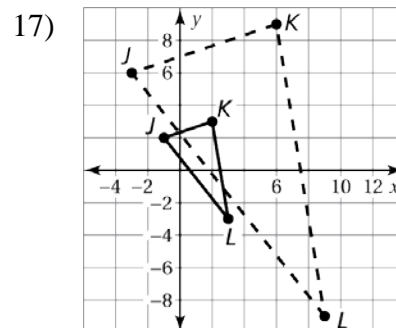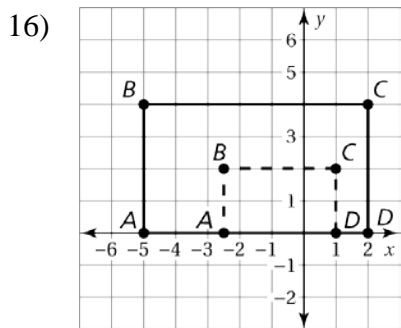13) $D(1, 2)$, $E(2, 1)$, $F(1, -3)$, $G(-3, -2)$; $k = 3$

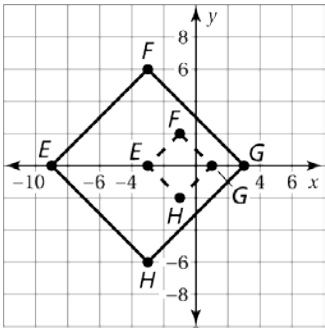14) $A(-3, -2)$, $B(2, 4)$, $C(8, 1)$; $k = \dfrac{1}{2}$

15) $P(1, 2)$, $Q(2, 2)$, $R(4, -2)$, $S(-1, -3)$; $k = 2$
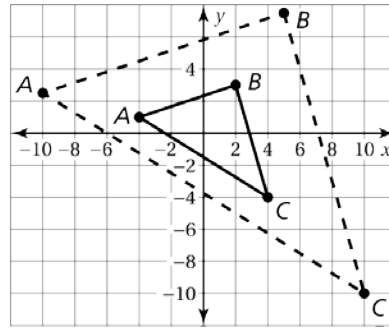
The dashed figure is a dilation of the solid figure. Identify the type of dilation and find the scale factor.
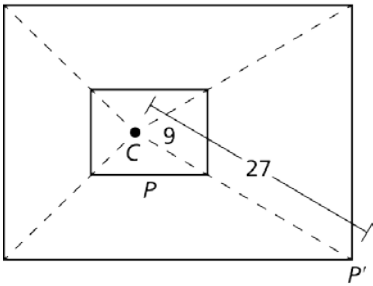
16)

17)

18)

19)

20)

21)