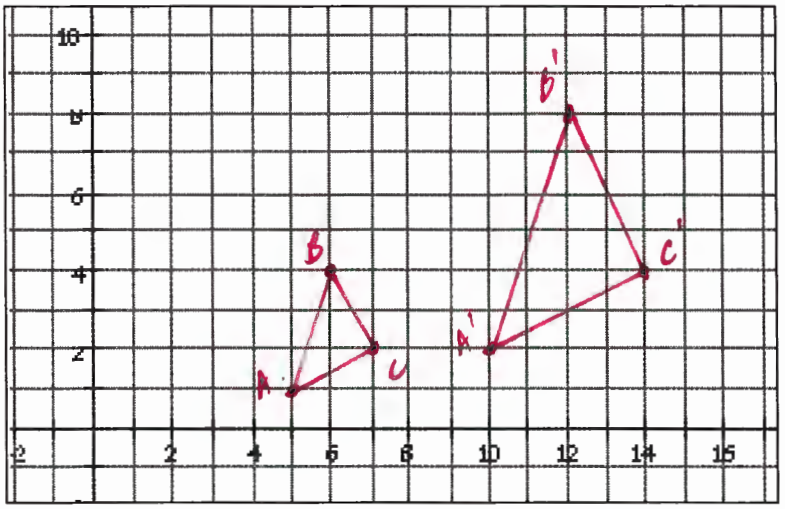
Name Answers Date

9.6 – Dilations

In this assignment, you need to use the sketch located in Edmodo or in your email named: "***DilationsD2***". 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 the ΔABC on the coordinate plane. Write the coordinates of the pre-image (original) below



A(5 , 1), B(6 , 4), C(7 , 2)

A'(10 , 2), B'(12 , 8), C"(14 , 4)

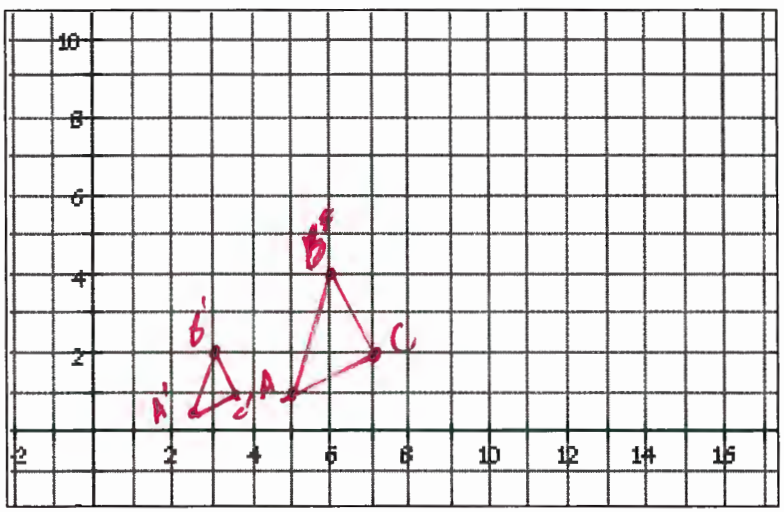
What do you believe is the connection between SCALE FACTOR and the coordinates of the image?

2) Press the button "***Show Dilation – Scale Factor 2***". Draw the new triangle ΔA'B'C' on the coordinate plane. Write the coordinates of the image (new shape) above.

3) Complete the box to the above right. Afterwards, press the button "***Hide Dilation – Scale Factor 2***".

Investigation 2 – Dilation – Scale Factor of .5

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



A(5 , 1), B(6 , 4), C(7 , 2)

A'(2.5 , .5), B'(3 , 2), C"(3.5 , 1)

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

5) Press the button "***Show Dilation – Scale Factor .5***". Draw the new triangle ΔA'B'C' on the coordinate plane. Write the coordinates of the image (new shape) above.

6) Complete the box to the above right. 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?

A'(15, 3), B'(18, 12), C'(21, 6)

b) Is the dilation an enlargement or reduction?

Enlargement

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 $\frac{1}{2}$?

D'(3, 2.5), E'(6, 5), F'(2, 4.5)

b) Is the dilation an enlargement or reduction?

Reduction

What about those dilation lines and the origin?

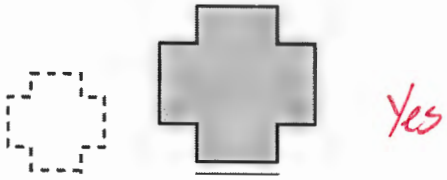
On the sketch "***DilationsD2***", show all the dilated shapes. Afterwards, press the button "Show Dilation Lines".

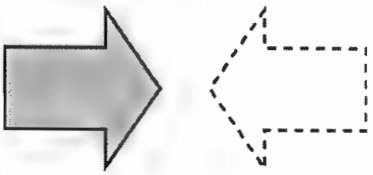
9) What do you believe is the purpose of the dilation lines? What is their relation to the original and the images?

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

The center of dilation is the origin

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

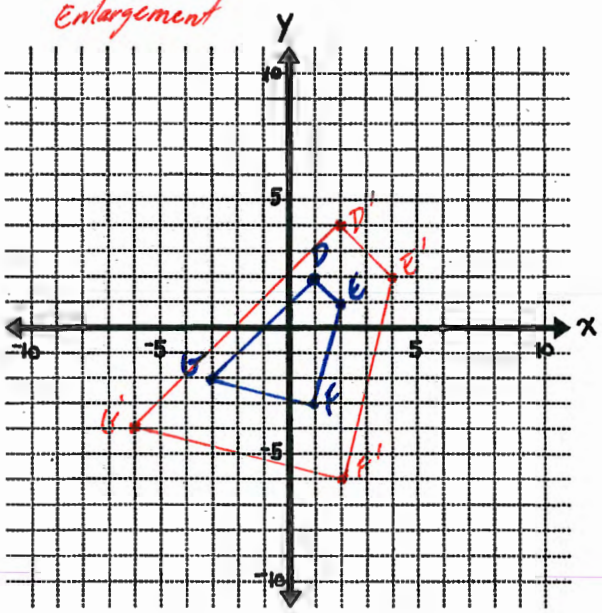
11)  Yes

12)  No

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.

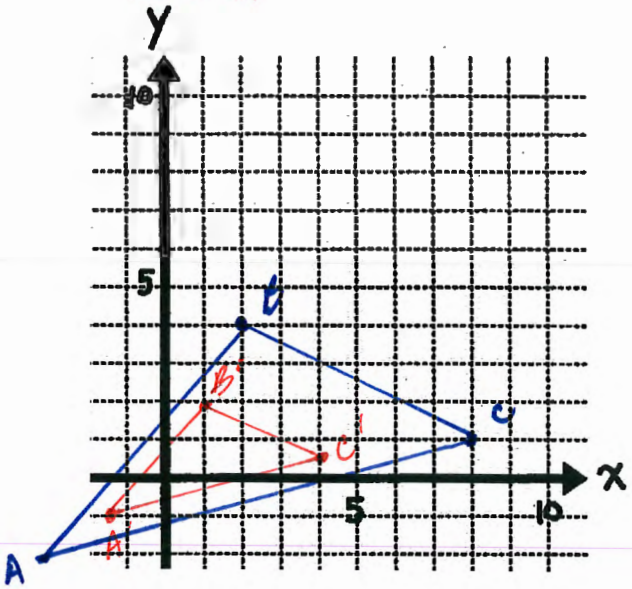
13) $D(1, 2)$, $E(2, 1)$, $F(1, -3)$, $G(-3, -2)$; $k = 3$

Enlargement



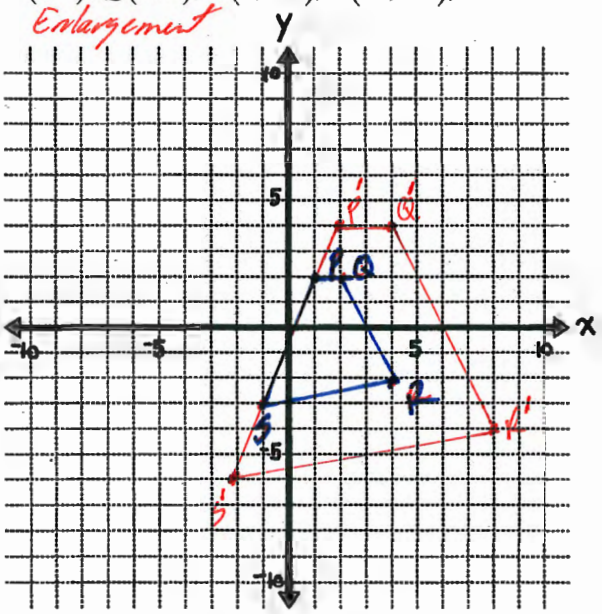
14) $A(-3, -2)$, $B(2, 4)$, $C(8, 1)$; $k = \frac{1}{2}$

Reduction



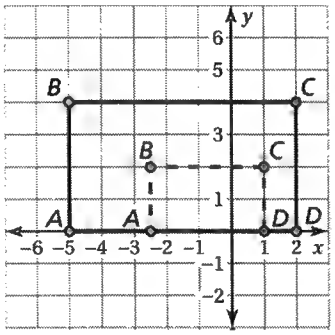
15) $P(1, 2)$, $Q(2, 2)$, $R(4, -2)$, $S(-1, -3)$; $k = 2$

Enlargement



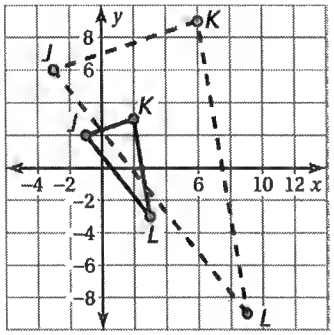
The dashed figure is a dilation of the solid figure. Identify the type of dilation and find the scale factor.

16)



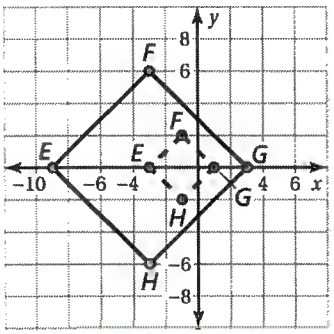
Reduction
Scale factor = $\frac{1}{2}$

17)



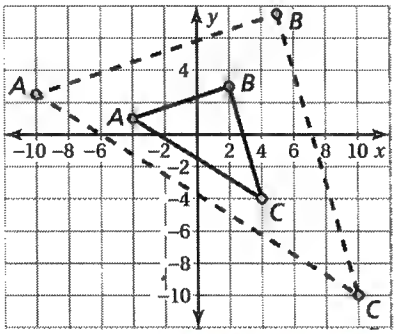
Enlargement
Scale factor = 3

18)



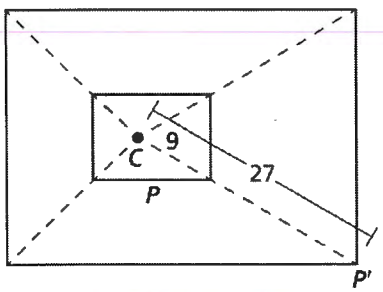
Reduction
Scale factor = $\frac{1}{3}$

19)



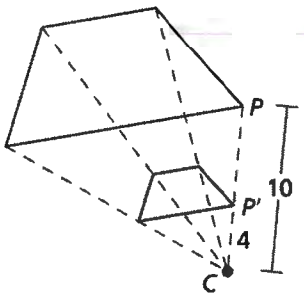
Enlargement
Scale factor = $2\frac{1}{2}$

20)



Enlargement
Scale factor = 3

21)



Reduction
Scale factor = $\frac{2}{5}$