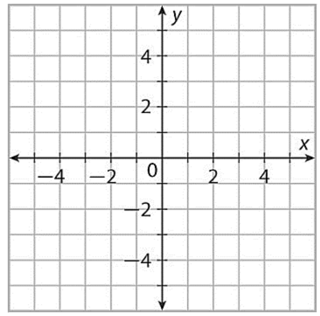
11.1-11.2 Practice Name________________________

For Problems 1-2, apply the dilation *D* to the polygon with the given vertices. Name the coordinates of the image points, and plot the pre-image and the image. Tell the scale factor.

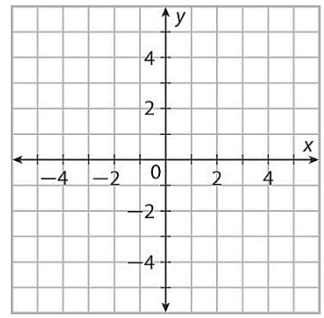


1. $D(x, y) \rightarrow (1.5x, 1.5y)$

   $G(1, -2)$, $H(1, -4)$, $J(4, -2)$

   G'(____, ____), H'(____, ____), J'(____, ____)

   Scale factor: ______



2. $D(x, y) \rightarrow \left(\dfrac{1}{3}x, \dfrac{1}{3}y\right)$

   $L(-3, 3)$, $M(3, 6)$, $N(3, -3)$

   L'(____, ____), M'(____, ____), N'(____, ____)

   Scale factor: ______

For Problems 3–7, use your graphs for Problems 1- 2.

3. Each side of the images in Problems 1–2 is _________________ to the corresponding side of its preimage.

4. Draw lines $\overline{GG'}$ $\overline{HH'}$ and $\overline{JJ'}$ on the graph for Problem 1. Where do the lines intersect?

   (____, ____) This point is called the ____________ of ______________.

5. Where would the lines $\overline{LL'}$ $\overline{MM'}$ and $\overline{NN'}$ intersect on the graph for Problem 2? (____, ____)

6. Fill in the lengths of the segments in Problem 1. Express each ratio as a decimal.

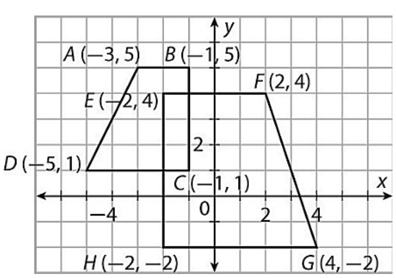
   $\dfrac{G'H'}{GH} = \dfrac{\square}{\square} =$ ______ $\qquad \dfrac{J'G'}{JG} = \dfrac{\square}{\square} =$ ______

7. Fill in the lengths of the segments in Problem 2. You may have to use Pythagorean Theorem or distance formula. If needed, express each ratio in radical form and then as a fraction in lowest terms.

   $\dfrac{L'M'}{LM} \; \dfrac{\square}{\square} = \dfrac{\square}{\square} \qquad \dfrac{M'N'}{MN} = \dfrac{\square}{\square} = \dfrac{\square}{\square} \qquad \dfrac{N'L'}{NL} = \dfrac{\square}{\square} = \dfrac{\square}{\square}$

Determine whether each transformation is a dilation. If it is not a dilation, **explain why not**.

8. $A(-3, 5)$, $B(-1, 5)$, $C(-1, 1)$, $D(-5, 1)$; $F(2, 4)$, $E(-2, 4)$, $H(-2, -2)$, $G(4, -2)$



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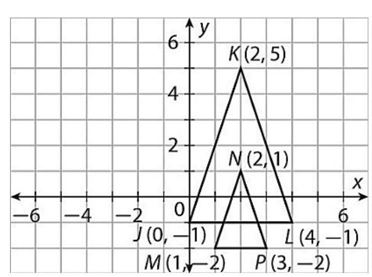
9. $J(0, -1)$, $K(2, 5)$, $L(4, -1)$; $M(1, -2)$, $N(2, 1)$, $P(3, -2)$



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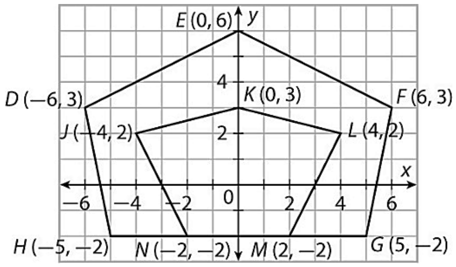
10. $D(-6, 3)$, $E(0, 6)$, $F(6, 3)$, $G(5, -2)$, $H(-5, -2)$; $J(-4, 2)$, $K(0, 3)$, $L(4, 2)$, $M(2, -2)$, $N(-2, -2)$



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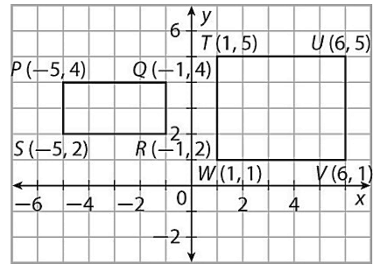
11. $P(-5, 4)$, $Q(-1, 4)$, $R(-1, 2)$, $S(5, 2)$; $T(1, 5)$, $U(6, 5)$, $V(6, 1)$, $W(1, 1)$



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____

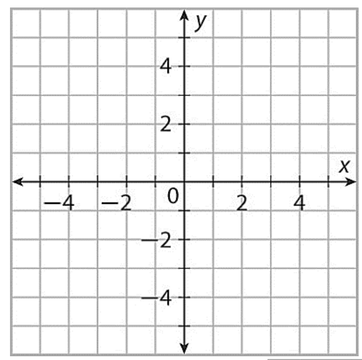
For Problems 12-13, plot each polygon on the grid. Show that the polygons are similar by describing transformations that map the first polygon to the second.

12. $T(-2, -3)$, $U(0, 1)$, $V(2, -3)$
$X(-4, -6)$, $Y(0, 2)$, $Z(4, -6)$

Each coordinate of ΔTUV can be multiplied by_____ to give the corresponding coordinate of Δ______.

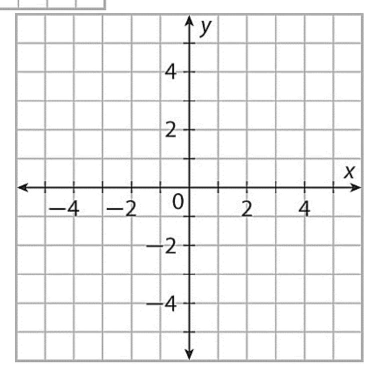
The transformation of ΔTUV to ΔXYZ is a ______________ with a scale factor of ______.

Therefore, the triangles are _______________.



13. $D(-2, 3)$, $E(2, 3)$, $F(2, -3)$, $G(-2, -3)$
$M(-6, -4)$, $N(-6, 4)$, $O(6, 4)$, $P(6, -4)$

Rectangle *DEFG* can be mapped onto rectangle ________ by a series of transformations. First, ___________*DEFG* ____° counterclockwise about the origin. Then _____________ *DEFG* by a scale factor of ______, which equals $MN \div$ _____.



Refer to Problems 12–13 to solve Problems 14–16.

14. A scale factor between 0 and 1 produces a similar figure that is ___________ than the original figure.

15. In Problem 14, $YZ = \sqrt{\_\_\_\_} = 4\sqrt{5}$, and $UV = \sqrt{\_\_\_\_} = 2\sqrt{5}$.

The ratio of *YZ* to *UV* in simplest form is ______.

16. If one polygon can be mapped to another by a series of __________, then the polygons are ________.

17. The most common picture size is 4 x 6 inches.

Other common picture sizes (in inches) are 5 x 7, 8 x 10, 9 x 12, 11 x 14, 14 x 18, and 16 x 20.

a. Are any of these picture sizes similar? Explain using similarity transformation.

____

b. What does your conclusion indicate about resizing pictures?

____