JEFFERSON COUNTY PUBLIC SCHOOLS DIGITAL: NTI

Supplemental Practice for GEOMETRY

Packet #1

The material in this packet is to be used as extra practice for students who would like to extend their learning once they have completed the Choice Boards for their grade level.

The expected time frame for this practice is approximately 2 weeks.

Geometry Practice: Transformations & Similarity

Name:

Date:

1. Define the terms below. Sketch an example for (a).

   a. dilation

   b. scale factor

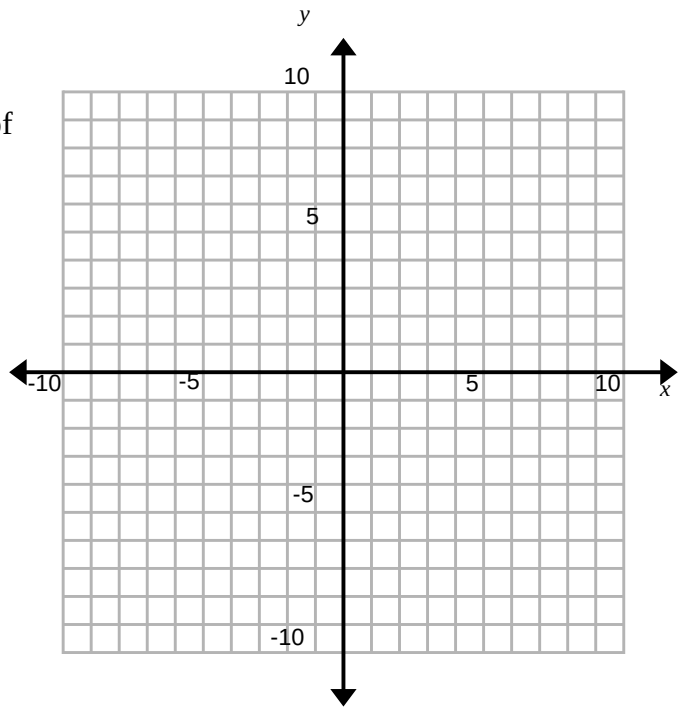
2. a) Two figures that have the same shape but different sizes are called _____.

   b) Two figures are similar if and only if they have all their corresponding _____are congruent and all their corresponding _____are proportional.

3. The vertices of a polygon are given.
   Draw the polygon. Then find the coordinates of the vertices of the image after a dilation having the scale factor of 3. Draw the image.

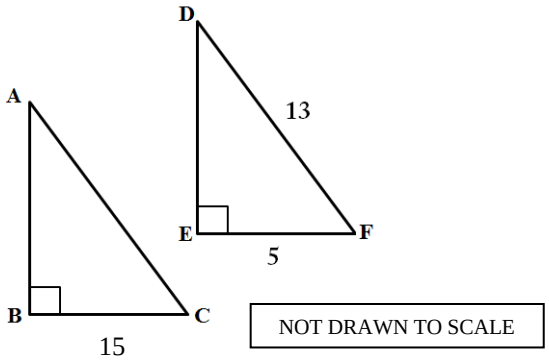
   A(−1, 1), ***B***(2, 1), ***C***(3,−2), ***D***(−3,−3)

   A´_____B´_____C´_____D'_____



4. Which series of transformations will create similar—not congruent— figures?
   (A) Rotation and Translation
   (B) Reflection and Rotation
   (C) Reflection and Dilation
   (D) Reflection and Translation

5. (SE) ΔABC is similar to ΔDEF . Which statement(s) is (are) true?



(A) The perimeter of $\Delta ABC = 90$

(B) $AB = 12$

(C) The area of $\Delta ABC = 540$

(D) $AC = 39$

6. (SE) $\Delta ABC \sim \Delta DEF$, $AC = 5,\ DF = 2.5,\ BC = 3.$
What is the length of $\overline{EF}$?

(A) 1 unit

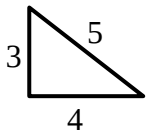
(B) 1.5 units

(C) 2.5 units

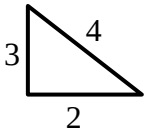
(D) 3 units

7. (SE) The four triangles below are *not* drawn to scale. Based on the given information, which pair of triangles are similar? Explain how you reasoning.

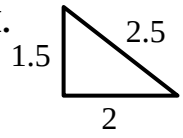
I.



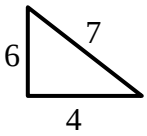
II.



III.



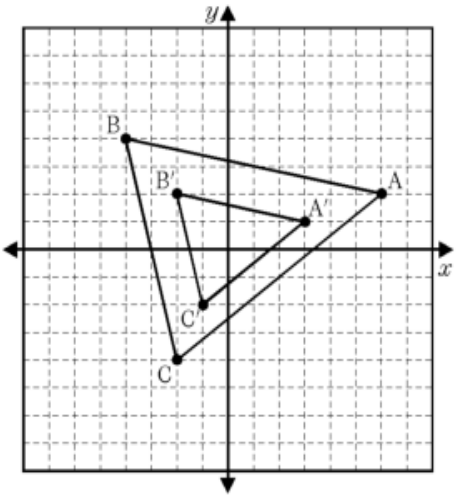
IV.



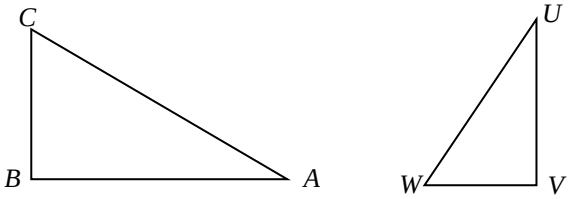
8. The same figure is transformed using two different transformations. Describe what transformations have occurred to each one. Explain or draw how you know.

Transformation 1: $(x, y) \rightarrow (x-2,\ y-2)$ Transformation 2: $(x, y) \rightarrow (4x,\ 4y)$

9. (SE) What is the scale factor of the dilation that maps $\Delta ABC \rightarrow \Delta A'B'C'$?



10. Given $\Delta ABC \sim \Delta UVW$. Name the corresponding sides.

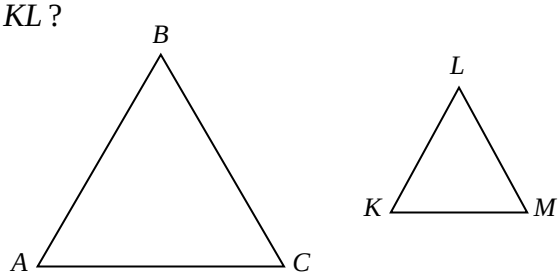


$\overline{AB} \sim$_____

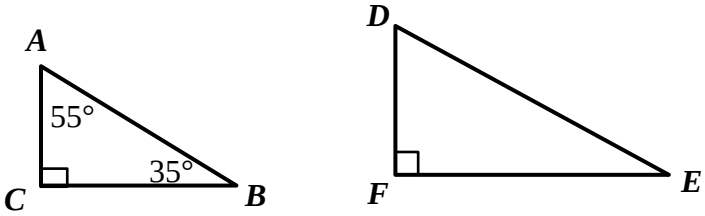
$\overline{BC} \sim$_____

$\overline{CA} \sim$_____

11. (SE) Triangle *ABC* is similar to triangle *KLM* where the ratio of proportionality is $\frac{1}{6}$, and *AB* = 24 centimeters. What is the measurement of $\overline{KL}$?



12. (SE) Triangles *ABC* and *DEF* are similar. What is the measure of angle ***E*** ?



13. (SBAC) A sequence of transformations is applied to a polygon. Identify each sequence of transformations where the resulting polygon has a greater area than the original polygon.

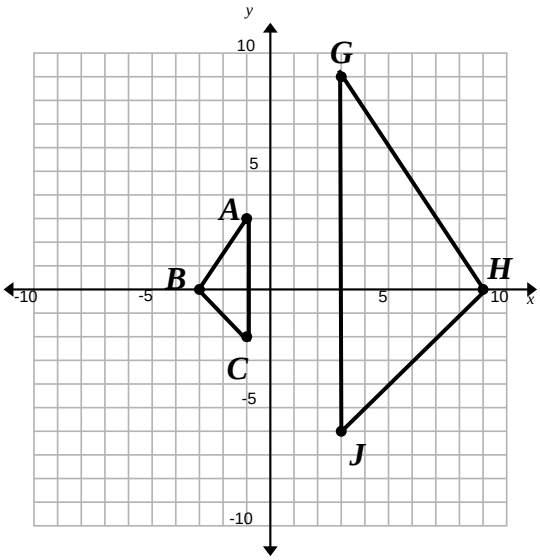
A) Reflect over the *x*-axis, dilate about the origin by a scale factor of $\frac{1}{2}$, translate up 5 units

B) Rotate 90° counterclockwise around the origin, dilate about the origin by a scale factor of $\frac{3}{2}$

C) Dilate about the origin by a scale factor of $\frac{2}{3}$, rotate 180° clockwise around the origin, translate down 2 units

D) Dilate about the origin by a scale factor of 2, reflect over the *y*-axis, dilate about the origin by a scale factor of $\frac{2}{3}$

14. A transformation is applied to ΔABC to form ΔDEF (not shown). Then, a transformation is applied to ΔDEF to form ΔGHJ.



Part A Graph ΔDEF on the *xy*-coordinate plane.

Part B Describe the transformation applied to ΔABC to form ΔDEF.

Part C Describe the transformation applied to ΔDEF to form ΔGHJ.

Part D *Select one statement that applies to the relationship between* ΔGHJ and ΔABC.

- ☐ ΔGHJ is congruent to ΔABC.
- ☐ ΔGHJ is similar to ΔABC.
- ☐ ΔGHJ is neither congruent nor similar to ΔABC

Explain your reasoning.