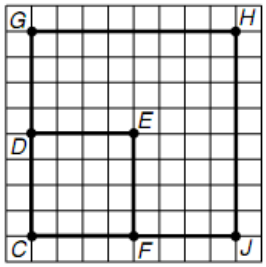
Geometry B **Name _____**
7.1 Dilations **Hour ____ Date _____**

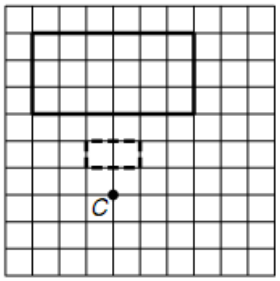
1. Determine whether the dilation shown is an enlargement, a reduction, or a congruence transformation. Then determine the scale factor. *CGHJ* is a dilation image of *CDEF*.



Type of dilation: _____

Scale factor: _____

2. Determine whether the dilation shown is an enlargement, a reduction, or a congruence transformation. Then determine the scale factor. The dashed figure is the dilation image.



Type of dilation: _____

Scale factor: _____

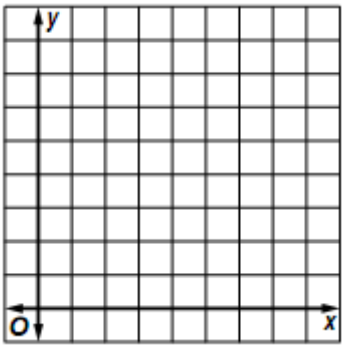
3. Graph the polygon that has the following vertices. Then find and graph the image of the polygon after a dilation centered at the origin with a scale factor of 2.

$A(1, 2) \rightarrow A'$

$B(3, 4) \rightarrow B'$

$C(4, 3) \rightarrow C'$

$D(2, 0) \rightarrow D'$

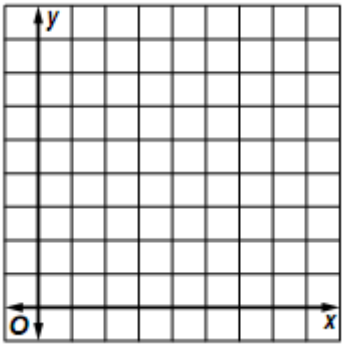


4. Graph the polygon that has the following vertices. Then find and graph the image of the polygon after a dilation centered at the origin with a scale factor of $\frac{1}{3}$.

$A(3, 0) \rightarrow A'$

$B(9, 9) \rightarrow B'$

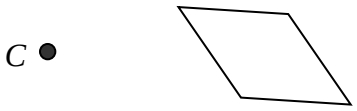
$C(0, 6) \rightarrow C'$



5. Find the length of $\overline{A'B'}$ under a dilation with a scale factor of 5 if $AB = 7.6$.

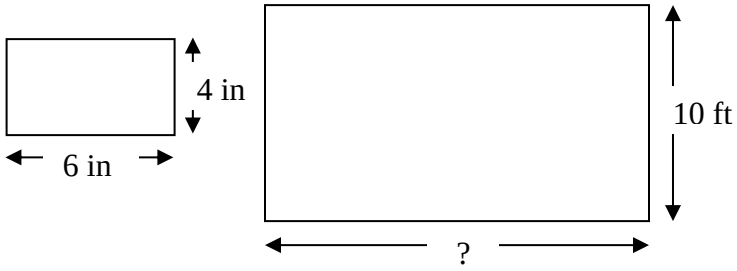
6. Find the length of $\overline{CD}$ under a dilation with a scale factor of $\frac{2}{5}$ if $C'D' = 8$.

7. Draw the image of the figure below under a dilation with center *C* and a scale factor of 3. Then determine whether the transformation is an enlargement, a reduction, or a congruence transformation.



Type of dilation: _____

8. A photograph with dimensions 4 in x 6 in is enlarged for a billboard. Both are shown at the right.



a. What is the scale factor used to create the billboard?

b. What is the width of the billboard?

Geometry B **Name _____**
7.2 Ratios and Proportions **Hour ____ Date _____**

Solve each of the following proportions. <u>Show all organized work.</u>

1. $\frac{5}{8} = \frac{x}{12}$

2. $\frac{x+2}{3} = \frac{8}{9}$

3. $\frac{x+1}{3} = \frac{7}{2}$

4. $\frac{x-2}{4} = \frac{x+4}{2}$

For #5-10:

a. Write a proportion.
b. Solve the proportion. <u>Show all organized work.</u>
c. State the final answer.

5. Edward Hopper's oil on canvas painting *Nighthawks* has a length of 60 inches and a width of 30 inches. A print of the original has a length of 2.5 inches. What is the width of the print?

6. The ratio of goats to sheep at a university research farm is 4:7. The number of sheep at the farm is 28. What is the number of goats?

7. The ratio of male students to female students in the drama club at Campbell High School is 3:4. If the number of male students in the club is 18, what is the number of female students?

8. The perimeter of a rectangle is 234 inches. The ratio of the length to the width is 8:5. Find the dimensions of the rectangle.

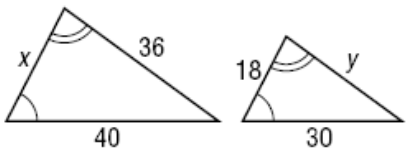
9. The ratio of the measures of the sides of a triangle is 3:4:6, and its perimeter is 104 feet. Find the measures of all the sides of the triangle.

10. The ratio of the measures of the angles of a triangle is 4:5:6. Find the measures of all the angles of the triangle.

Geometry B **Name _____**
7.3 Similar Polygons **Hour ____ Date _____**

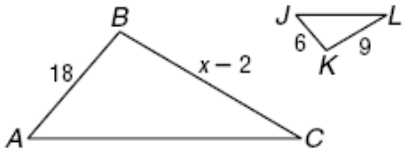
For #1-6, each pair of triangles is similar.

1. Find the values of *x* and *y*.



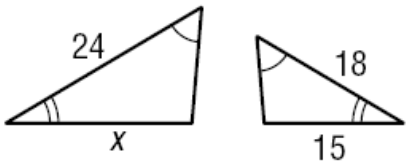
x = _____ *y* = _____

2. Find the value of *x*. $\Delta ABC \sim \Delta JKL$



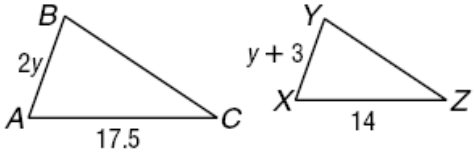
x = _____

3. Find the value of *x*.



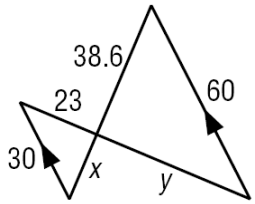
x = _____

4. Find the value of *y*.



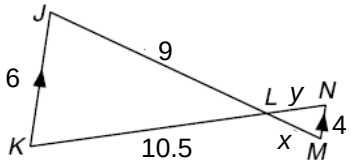
y = _____

5. Find the values of x and y.



x = _____ y = _____

6. Find the values of x and y.



x = _____ y = _____

7. The ratio of the angle measures in a triangle is 7:13:16. What are the measures of each angle?

8. The ratio of the length to the width of a rectangle is 14:11. The rectangle's perimeter is 650 mm. What are the rectangle's dimensions?

Geometry B **Name _____**

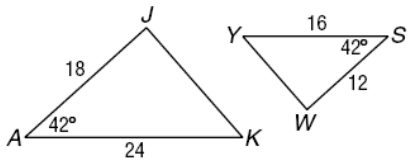
7-4 Proving Triangles Similar **Hour ____ Date _____**

For questions #1-4,

a. Tell if you can conclude that the two given triangles are similar (YES or NO)

b. If so, state the postulate you used and write a similarity statement. If not, explain.

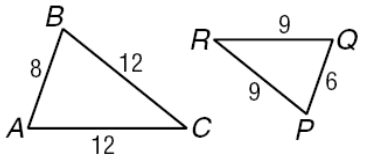
1.



a. Similar? YES or NO

b. _____

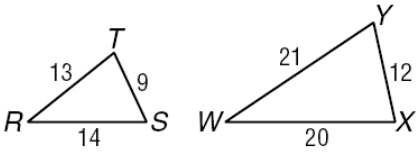
2.



a. Similar? YES or NO

b. _____

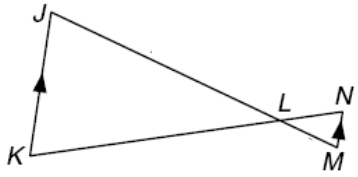
3.



a. Similar? YES or NO

b. _____

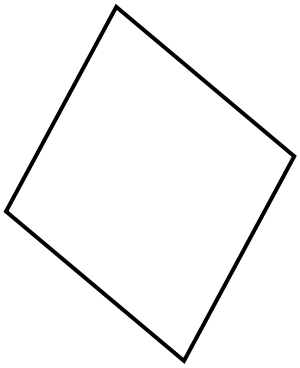
4.



a. Similar? YES or NO

b. _____

5. Draw the image of the figure below under a dilation with center *C* and a scale factor of ½ . Then determine whether the transformation is an enlargement, a reduction, or a congruence transformation.

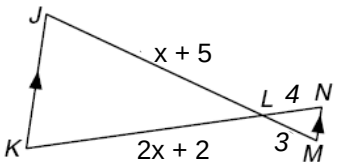


● *C*

Type of dilation: _____

6. A lighthouse casts a 128-foot shadow. A nearby lamppost that measures 5.25 feet casts an 8-foot shadow. **Make a sketch of the situation.** Write a proportion that could be used to determine the height of the lighthouse. Then solve the proportion.

7. Find the value of *x*.

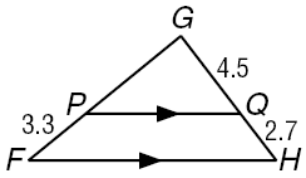


x = _____

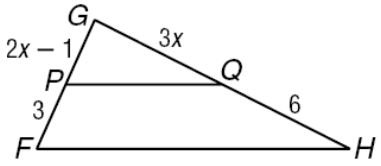
8. Find the length of $\overline{MN}$ under a dilation with a scale factor of $\frac{2}{3}$ if $M'N' = 12$.

Geometry B **Name** _____
7.5 Proportional Parts of Triangles **Hour** ____ **Date** _____

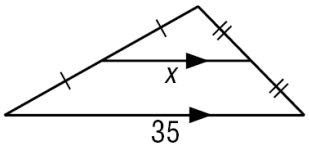
1. Find *GP*.



2. Find the value of *x* if *PQ* || *FH*.



3. Find the value of *x*.

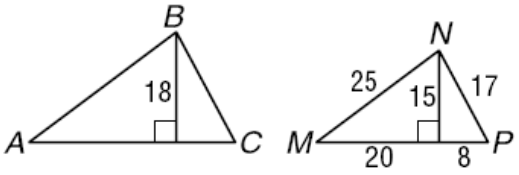


4. In ΔFGH, *C* is the midpoint of $\overline{GF}$ and *D* is the midpoint of $\overline{GH}$.

a. **Draw** and **label** ΔFGH.

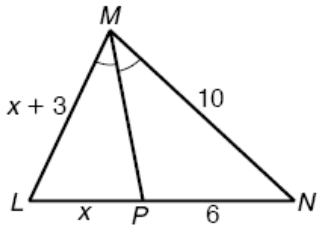
b. If *CD* = 16, find *FH*.

5. $\Delta ABC \sim \Delta MNP$. Find *AB*, *BC*, and *AC*.



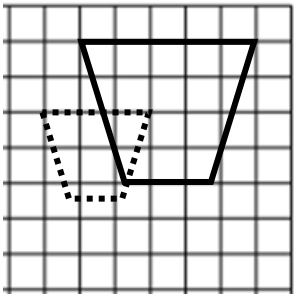
AB = _____ *BC* = _____ *AC* = _____

6. Find the value of *x*, *LM*, and *LN*.



x = _____ *LM* = _____ *LN* = _____

7. Determine whether the dilation shown is an enlargement, a reduction, or a congruence transformation. Then determine the scale factor. The dashed figure is the dilation image.



Type of dilation: _____

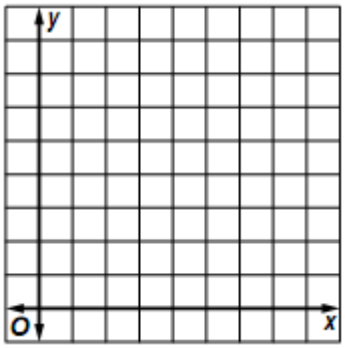
Scale factor: _____

8. Graph the triangle that has the following vertices. Then find and graph the image of the triangle after a dilation centered at the origin with a scale factor of $\frac{3}{2}$.

$A(4, 0) \rightarrow A'$

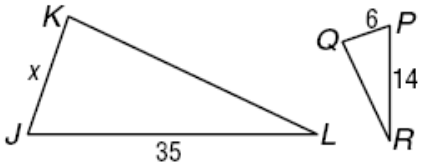
$B(6, 6) \rightarrow B'$

$C(2, 3) \rightarrow C'$



Type of dilation: _____

9. $\Delta JKL \sim \Delta PQR$. Find the value of x.
Show all work.

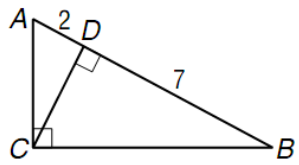


10. A postage stamp 25 millimeters wide and 40 millimeters tall is enlarged to make a poster. The poster is 4 feet wide. Find the height of the poster.

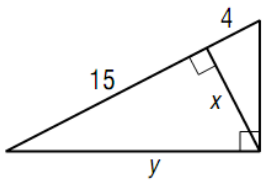
Geometry B **Name _____**
7.6 Similarity in Right Triangles **Hour ____ Date _____**

For all problems, round your answers to 2 decimal places.

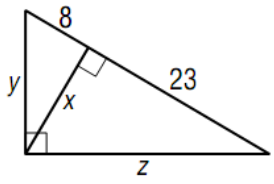
1. Find the length of $\overline{CD}$.



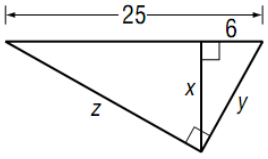
2. Find the values of *x* and *y*.



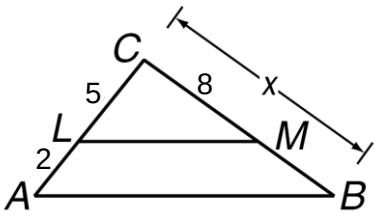
3. Find the values of *x*, *y* and *z*.



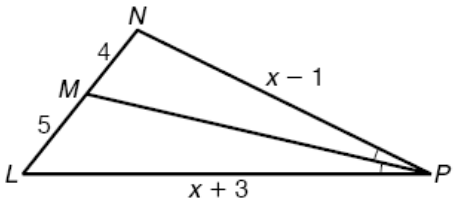
4. Find the values of *x*, *y* and *z*.



5. Find x so that $\overline{LM} \parallel \overline{AB}$.



6. Find x.



7. A car has a length of 8 feet and a width of 4.8 feet. If the width of a model of the car is 6 inches, what is the length of the model?

8. Find the length of $M'N'$ under a dilation with a scale factor of $\frac{2}{3}$ if $\overline{MN} = 12$.

9. If $\Delta ABC \sim \Delta SPK$, which proportion must be true? **Sketch and label a picture to help you determine the correct answer.**

A. $\frac{AB}{SP} = \frac{BC}{SK}$ **B.** $\frac{AB}{BC} = \frac{PK}{SP}$ **C.** $\frac{AC}{SK} = \frac{BC}{SK}$ **D.** $\frac{AB}{BC} = \frac{SP}{PK}$