

Name: _____ # _____

Geometry: Period _____

Ms. Pierre

Date: _____

Similar Triangles (Part I)

Today's Objective

SWBAT apply the properties of similar polygons to solve problems as well as prove certain triangles are similar by using AA, SSS, and SAS.

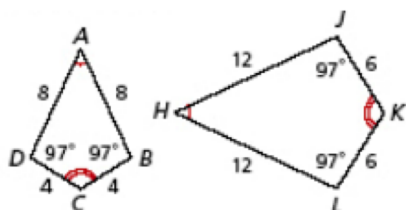
Figures that are _____ have the same _____ but not necessarily the same _____.

To prove that two figures are similar their corresponding angles must be _____, and their corresponding sides must be _____.

Example 1

Identify the pairs of congruent angles and proportional sides in the following figure.

$\angle A \cong$ _____
 $\angle B \cong$ _____
 $\angle K \cong$ _____
 $\angle L \cong$ _____
 $\overline{AB} \sim$ _____
 $\overline{AD} \sim$ _____
 $\overline{JK} \sim$ _____
 $\overline{KL} \sim$ _____

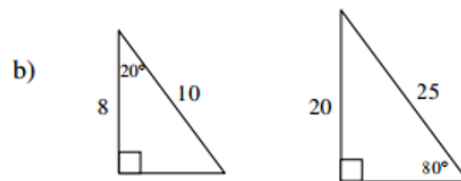
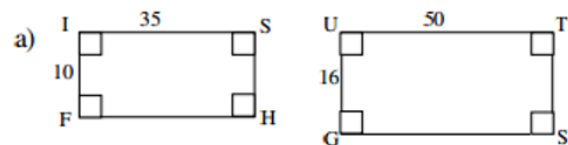


A _____ can be written to show that polygons are similar.

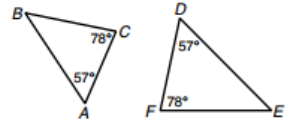
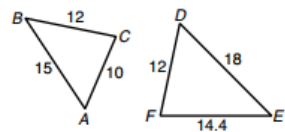
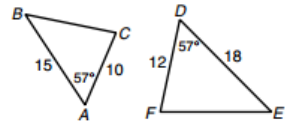
A _____ is a ratio that compares the _____ of the corresponding sides of two similar polygons. The ratio is written in the same order as the similarity statement.

Example 2

Determine if each pair of polygons are similar. If so, write the similarity statement and the similarity ratio.

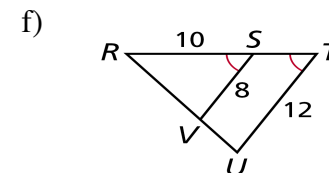
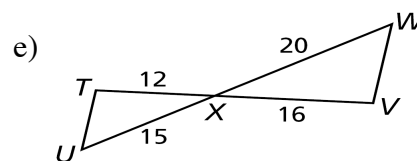
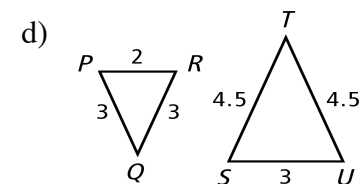
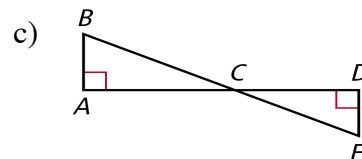
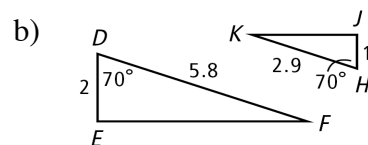
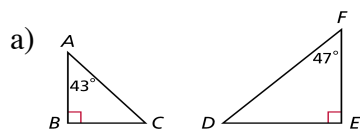


Triangle Similarity: AA, SSS, and SAS

Angle-Angle (AA) Similarity	If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.	 $\triangle ABC \sim \triangle DEF$
Side-Side-Side (SSS) Similarity	If the three sides of one triangle are proportional to the three corresponding sides of another triangle, then the triangles are similar.	 $\triangle ABC \sim \triangle DEF$
Side-Angle-Side (SAS) Similarity	If two sides of one triangle are proportional to two sides of another triangle and their included angles are congruent, then the triangles are similar.	 $\triangle ABC \sim \triangle DEF$

Example 3

Determine whether the triangles are similar, if so give the similarity statement.





Guided Practice

Write each ratio in simplest form.

1. $\frac{15}{20}$

2. $\frac{7}{49}$

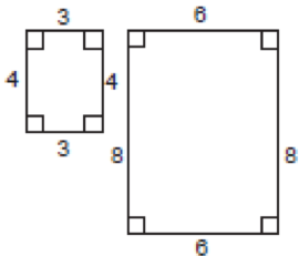
Solve each proportion.

3. $\frac{3}{8} = \frac{6}{x}$

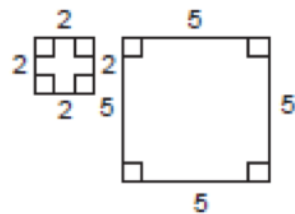
4. $\frac{24}{18} = \frac{x}{3}$

Determine whether each pair of polygons is similar.

5.

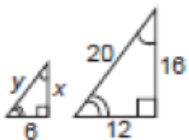


6.

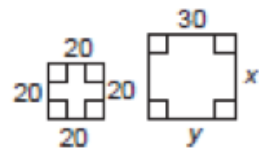


If each pair of polygons is similar, find x and y .

7.



8.



Independent Practice

Write the ratio in simplest form.

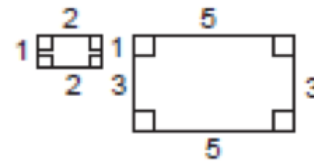
1. $\frac{10}{15}$

Solve the proportion.

2. $\frac{7}{12} = \frac{14}{x}$

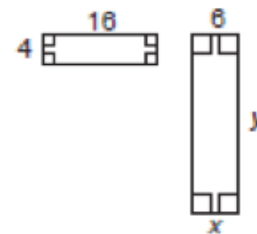
Determine whether the pair of polygons is similar.

3.



If the pair of polygons is similar, find x and y .

4.



Homework

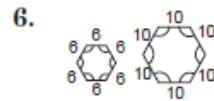
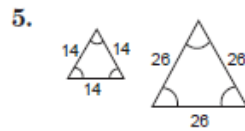
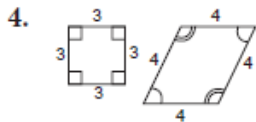
Solve each proportion.

$$1. \frac{8}{28} = \frac{x}{21}$$

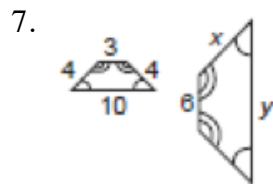
$$2. \frac{4}{8} = \frac{x}{12}$$

$$3. \frac{32}{6} = \frac{16}{x}$$

Determine whether each pair of polygons is similar.

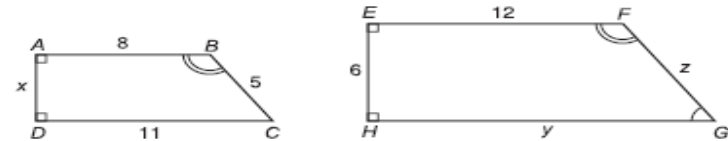


If each pair of polygons is similar, find x and y .



Homework

In the figure below, trapezoid $ABCD \sim$ trapezoid $EFGH$.
Use the information to answer the questions below.



List all pairs of corresponding angles.

Write 4 ratios relating the corresponding sides.

Write a proportion to find the missing measure x . Then find the value of x .

Write a proportion to find the missing measure y . Then find the value of y .

Write a proportion to find the missing measure z . Then find the value of z .