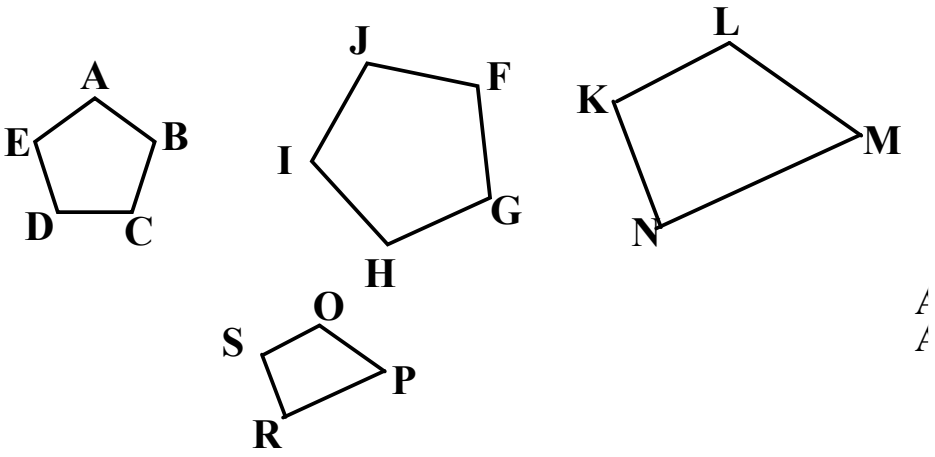
Similar Polygons

When polygons have the same shape, but may be different in size, they are called similar polygons.



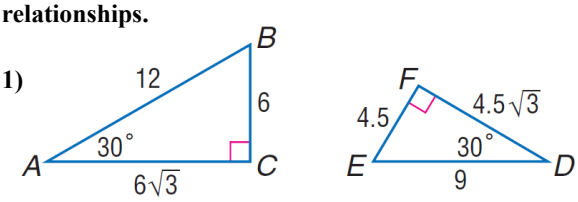
Def. of similar polygons

2 polygons are similar if their corresponding ∠'s are ≅ and the measures of their corresponding sides are in proportion.

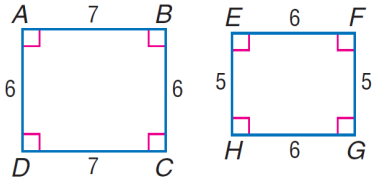
7.2 - Similar Polygons

Are these polygons similar? Justify your answer with relationships.

1)

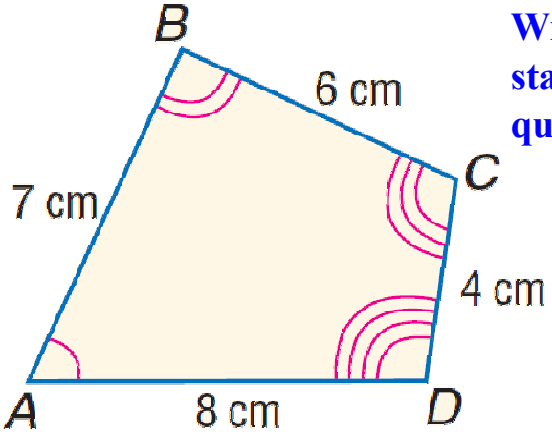


2)

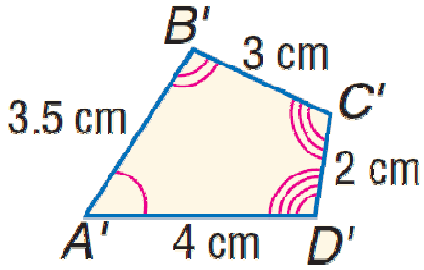


The symbol for similar is ~

The order of vertices in a similarity statement is important. It identifies the corresponding angles and the corresponding sides.



Write the similarity statement for these quadrilaterals.

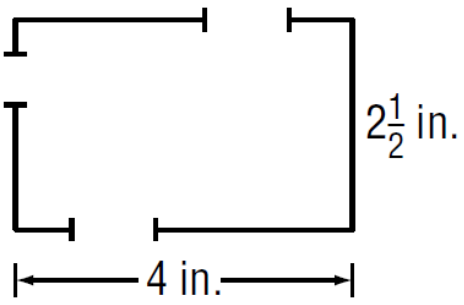


Def. of scale factor

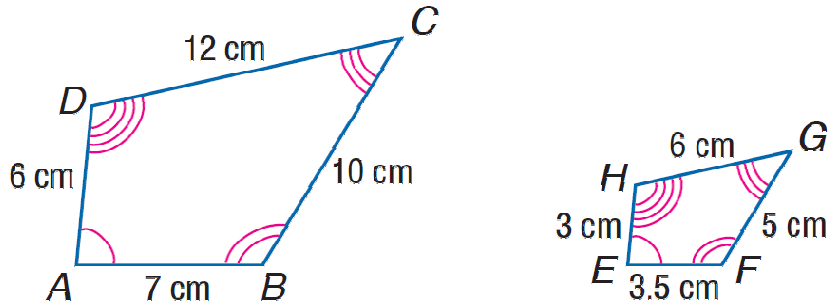
The reduced ratio of the corresponding sides

The height of the Soldiers' National Monument in Gettysburg, PA, is 60 feet. The height of a model of the monument is 10 inches. What is the scale factor of the model compared to the original?

Graham used the scale drawing of his living room to decide where to place furniture. Find the dimensions of the living room if the scale in the drawing is 1 inch = 4.5 feet.

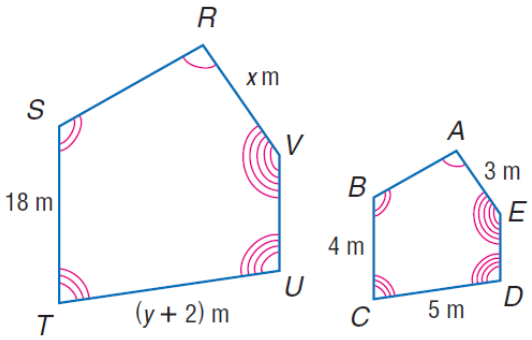


When finding the scale factor for similar polygons (or any other similar things), the scale factor depends on the order of comparison.

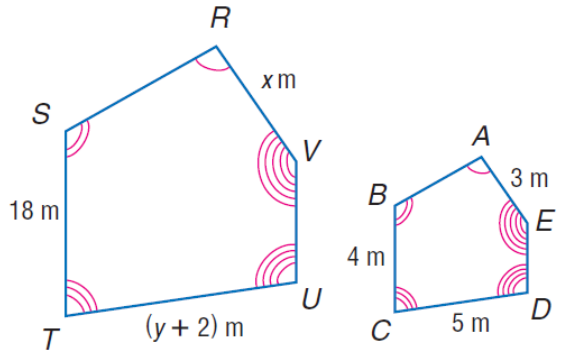


The scale factor of quadrilateral $ABCD$ to quadrilateral $EFGH$ is 2.
The scale factor of quadrilateral $EFGH$ to quadrilateral $ABCD$ is $\frac{1}{2}$.

These polygons are similar.
1) Find the scale factor of polygon ABCDE to polygon RVUST.
2) Find the scale factor of polygon RVUST to polygon ABCDE.
3) What do you notice if you compare the two scale factors from 1 and 2?



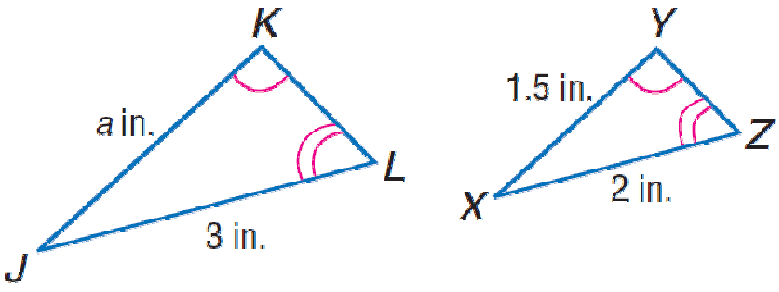
7.2 - Similar Polygons



These polygons are similar. Write a similarity statement.

Find the values of *x*, *y* and *UT*.

Write a similarity statement. Then find a and the scale factor of $\triangle JKL$ to $\triangle XYZ$.



7.2 - Similar Polygons

Rectangle $QRST$ is similar to rectangle $JKLM$ with a scale factor of $\frac{4}{5}$. If the lengths of the sides of rectangle $QRST$ are 5 centimeters and 12 centimeters, what are the lengths of the sides of rectangle $JKLM$?

MAPS **The scale on the map of New Mexico is 2 centimeters = 160 miles. The width of New Mexico through Albuquerque on the map is 4.1 centimeters. How long would it take to drive across New Mexico if you drove at an average of 60 miles per hour?**

The distance on the map from Las Cruces to Roswell is 1.8 centimeters. How long would it take to drive if you drove an average of 55 miles per hour?