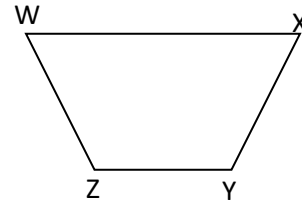
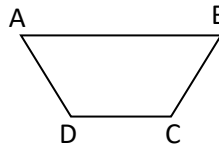


What does SIMILAR mean?

**Similar Polygons: 2 Polygons are similar if and only if their corresponding angles are congruent & Corresponding sides are proportional.**

$$ABCD \sim WXYZ$$



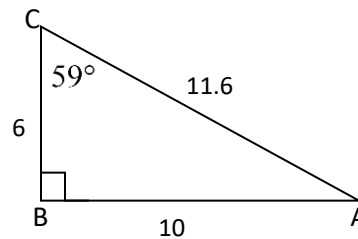
List the  $\cong$  Corresponding  $\sphericalangle$ 's :

List the Corresponding sides as a ratios (fractions): Color corresponding sides

1. Identify the pairs of congruent angles & corresponding sides. We are going to determine if the sides are proportional to each other.

Are the corresponding angles congruent?

Decorate corresponding angles & List them:

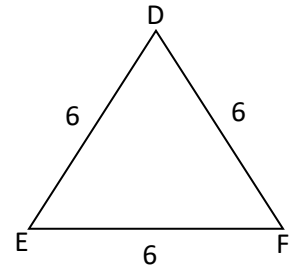
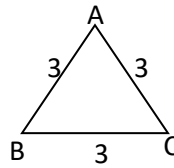


Corresponding sides:

If the corresponding angles are congruent and the corresponding sides are proportional then the triangles are similar and we will need to write a similarity statement:

**Similarity Ratio-** A SIMILARITY RATIO is the RATIO of the corresponding sides of two similar polygons.

The similarity ratio of  $\triangle ABC$  to  $\triangle DEF$  is \_\_\_\_\_ to \_\_\_\_\_



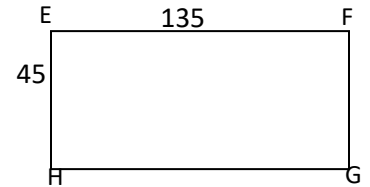
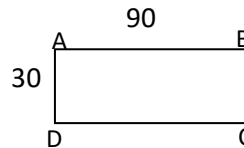
The similarity ratio of  $\triangle DEF$  to  $\triangle ABC$  is \_\_\_\_\_ to \_\_\_\_\_

NOTICE, order is IMPORTANT!

2. Determine whether the polygons are similar. If so, write the similarity ratio & a similarity statement.

Rectangles ABCD and EFGH

Step 1: Identify pairs of  $\cong \sphericalangle$ 's :

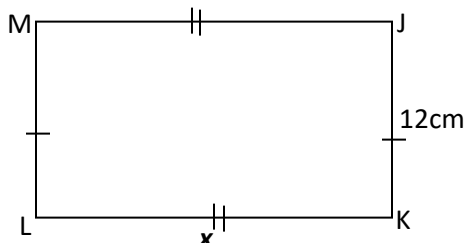
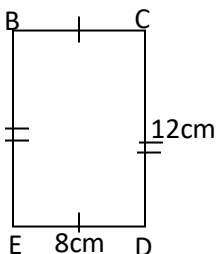


Step 2: Compare Corresponding sides:

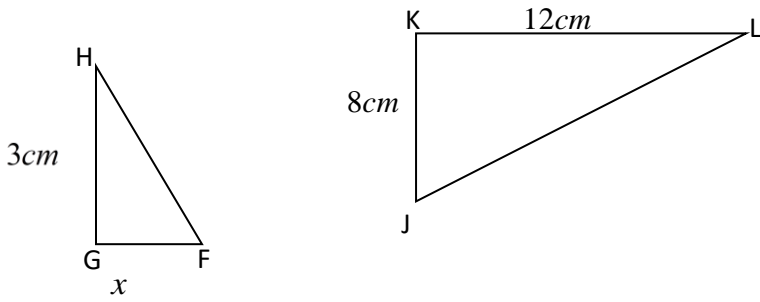
Step 3: write a similarity statement : \_\_\_\_\_

3. Use the similarity statement to help write a proportion of the corresponding sides (to find the missing side)

A.  $BCDE \sim JKLM$



B.  $\triangle FGH \sim \triangle JKL$  . Write a proportion and solve for  $x$ .



4. Application Problem:

A Railbox boxcar can be used to transport auto parts. If the length of the actual boxcar is 50 ft, find the width of the actual boxcar to the nearest tenth of a foot.

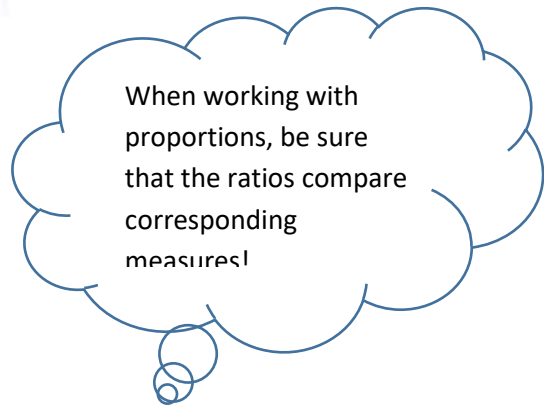
Let  $x$  be the width of the actual boxcar in feet. The rectangular model of a boxcar is similar to the rectangular boxcar, so the corresponding lengths are proportional.



$$\frac{\text{length of boxcar}}{\text{length of model}} = \frac{\text{width of boxcar}}{\text{width of model}}$$

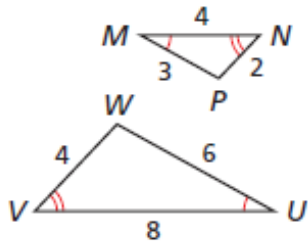
Substitute in your Values into the Proportion.

Then use cross Products property To solve.

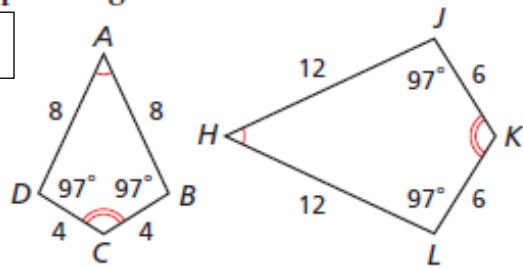


Identify the pairs of congruent angles and corresponding sides.

1



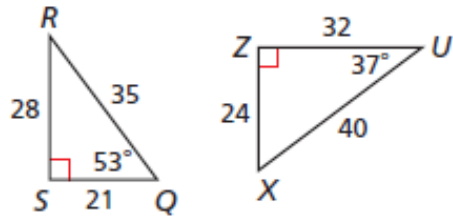
2



**Multi-Step** Determine whether the polygons are similar. If so, write the similarity ratio and a similarity statement.

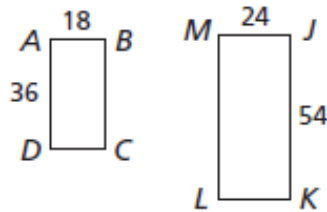
3

$\triangle RSQ$  and  $\triangle UXZ$



4

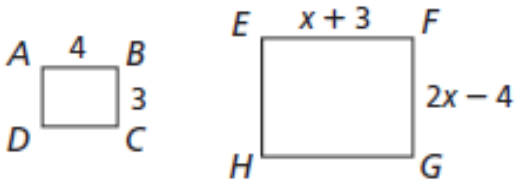
rectangles  $ABCD$  and  $JKLM$



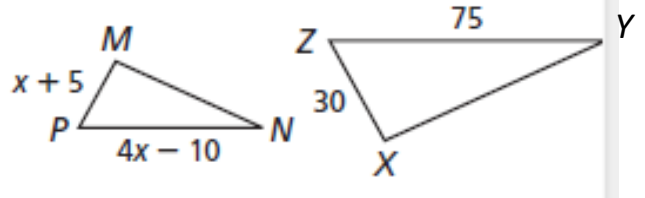
List congruent corresponding angles for each, as well as showing that all pairs of corresponding sides are proportional or not.

Find the value of  $x$  in each problem. Show your proportion for each and all work.

5  $ABCD \sim EFGH$



6  $\triangle MNP \sim \triangle XYZ$



Solve the following proportions.

7)  $\frac{x+2}{2x+1} = \frac{10}{14}$

8)  $\frac{2y}{4y-2} = \frac{14.4}{24}$

9)  $\frac{6}{9} = \frac{x-1}{2x-4}$

10) The ratio of the side lengths of an isosceles triangle is  $4 : 4 : 7$ , and its perimeter is  $52.5\text{cm}$ . What is the length of each side of the triangle?