Honors Math 2 3.1 Proportions and Similar Figures

Similar Figures:

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Notation:

Given that $\triangle RST \sim \triangle UVW$, write congruence statements for the corresponding angles and proportions for the corresponding sides.

1.) Corresponding angles are listed in the same position in each triangle name.

$\angle R \cong \angle U$, _____ , _____

2.) Corresponding sides are pairs of letters in the same position in each triangle name.

$\frac{UV}{RS} =$ _____

$\triangle RST \sim \triangle UVW$

Corresponding sides Corresponding sides

3.) Suppose the scale factor of the dilation in the sequence of similarity transformations that maps $\triangle RST$ to $\triangle UVW$ is 4 and suppose $RS = 8$ mm. Explain how to find the length of $\overline{UV}$.

_____

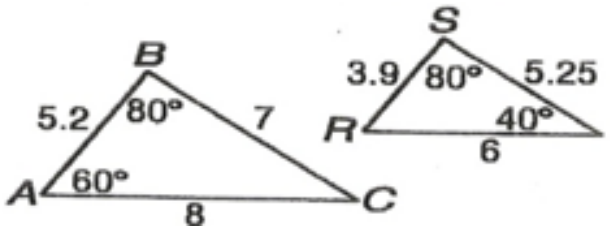
4.) A student identified $\overline{RS}$ and $\overline{UV}$ as a pair of corresponding sides and $\overline{ST}$ and $\overline{VW}$ as a pair of corresponding sides. The student wrote $\frac{RS}{UV} = \frac{VW}{ST}$. Is this a correct proportion? Why or why not? If the proportion is not correct, explain how to write correctly.

_____

_____

5.) Suppose $\Delta CAN \sim \Delta JOY$. If $m\angle A = 96°$, $m\angle N = 46°$ and $m\angle C = 38°$, then $m\angle Y =$ _____, $m\angle J =$ _____ and $m\angle O =$ _____.

6) Determine whether the given figures are similar



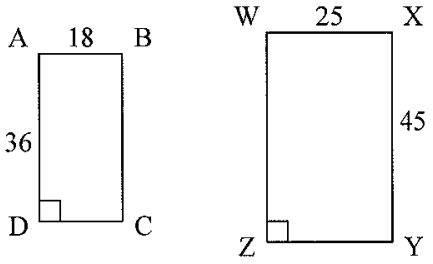
Similarity Statement:

Scale Factor:

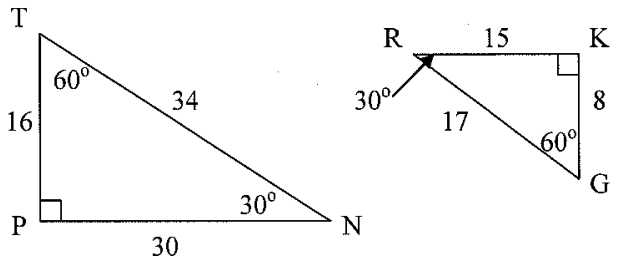
In example 5, the scale factor of ΔABC to ΔRST is _____.

the scale factor of ΔRST to ΔABC is _____.

1. Are the following rectangles similar?



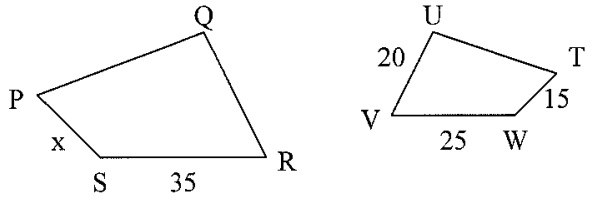
2. Are the following triangles similar?



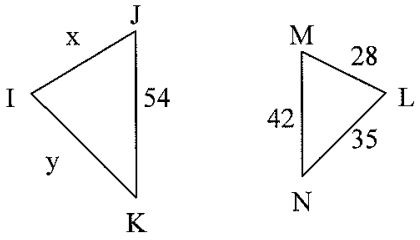
Solving with Similar Figures

Given two figures are similar, corresponding sides must be in proportion. Therefore, we can write a proportion to find the missing side length of one of the figures.

1. Given quadrilateral PQRS ~ TUVW, write a proportion to find the length of $\overline{PS}$.



2. Given $\Delta IJK \sim \Delta LMN$, Find the length of $\overline{IJ}$ and then the length of $\overline{IK}$.



3. If a 36-inch yardstick casts a 21-foot shadow, how tall is a building whose shadow is 168 feet? (Draw a picture with two similar polygons.)

4. Sam wants to enlarge a triangle with sides 3, 6 and 6 inches. If the shortest side of the new triangle is 13 inches, how long will the other two sides be?