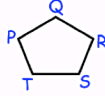
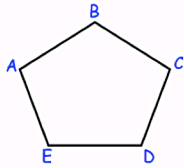


Similar Polygons

Two polygons are **similar** if the second can be obtained by the first by a sequence of translations, reflections, rotations, and dilations.

When you name similar polygons, their corresponding vertices must be named in the same order. For example, if polygon $ABCDE$ below is similar to polygon $PQRST$, then we know that:



$$\frac{AB}{PQ} = \frac{BC}{RS}$$

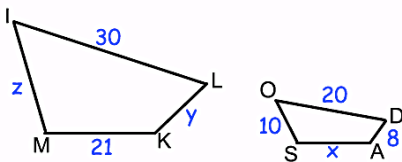
$$\frac{CD}{RS} = \frac{DE}{ST}$$

$$\frac{AE}{PT} = \frac{BC}{QR}$$

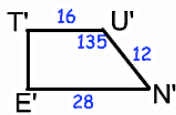
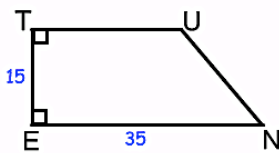
$$\angle A \cong \angle P \quad \angle B \cong \angle Q \quad \angle D \cong \angle R$$

The ratio of the sides is called the **scale factor**. If, in the polygon above, AB were 12 and PQ were 8, then the scale factor would be $\frac{12}{8}$ or $\frac{3}{2}$. The symbol for similar is \sim , so we can also write $ABCDE \sim PQRST$.

1. Quadrilateral $MILK \sim$ Quadrilateral $SODA$. Use the scale factor to find the values of x , y , and z .

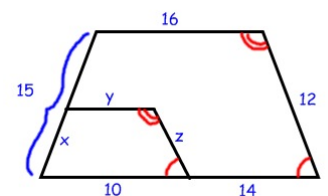
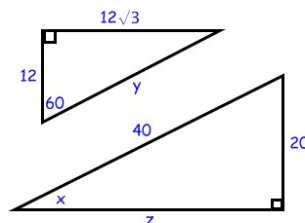
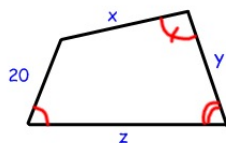
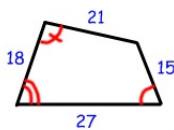


2. Quadrilateral $TUNE \sim$ Quadrilateral $T'U'N'E'$. Find:



- the measure of $\angle N$
- the measure of $\angle E'$
- TU
- $T'E'$
- UN
- the ratio of the perimeters

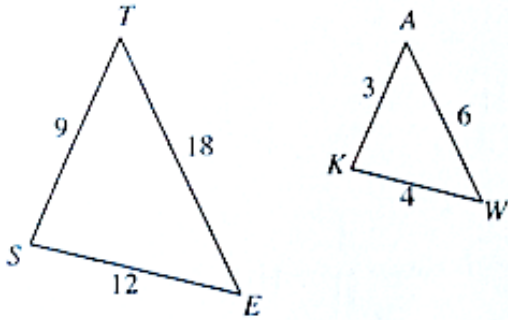
3. Three sets of two similar polygons are shown. Find the values of x , y , and z for each set:



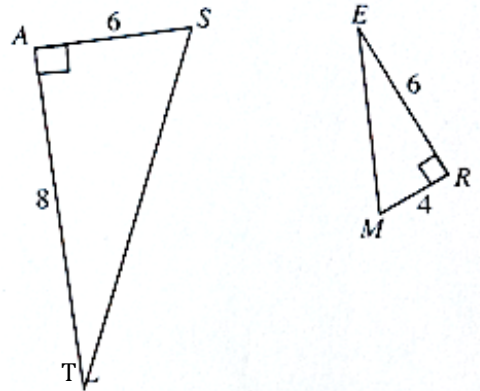
Are the Triangles Similar?

Directions: Based on the information given, which pair of triangles is similar? If they are similar, write the similarity statement, e.g., $\triangle ABC \sim \triangle DEF$ by SAS~. Justify your answer completely.

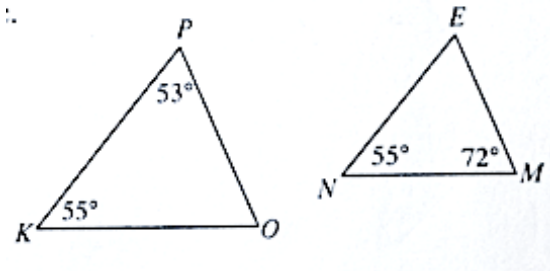
1.



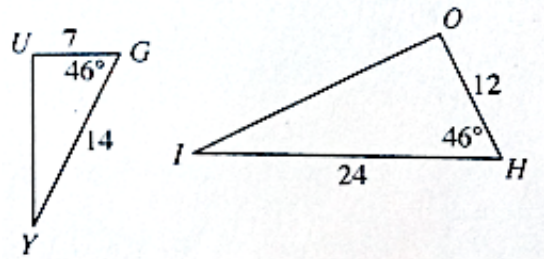
2.



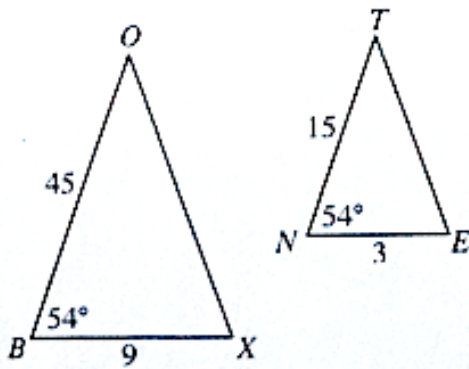
3.



4.



5.



6.

