

Exploring Similar Figures

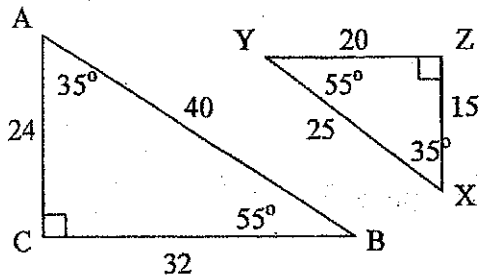
Similar Figures – Polygons that have the same shape, but different size.

Corresponding – Having the same position.

Two polygons are similar if:

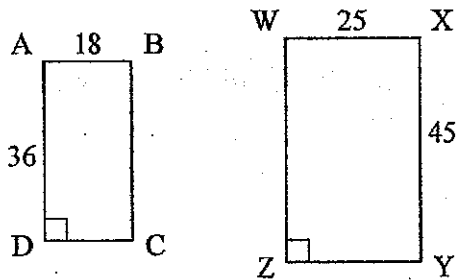
1. corresponding angles are congruent AND
2. the lengths of corresponding sides are in proportion, called the **scale factor**.

Show if the triangles below are similar or not.

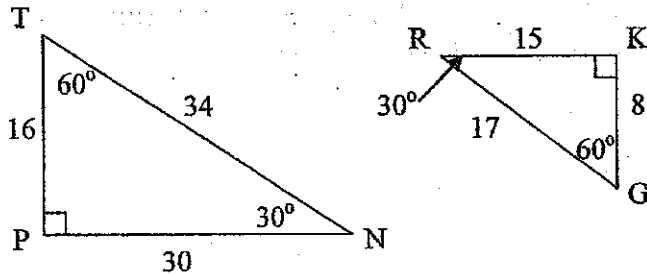


When two polygons are similar, we can write a similarity statement using the symbol “ \sim ”.

1. Are the following rectangles similar?



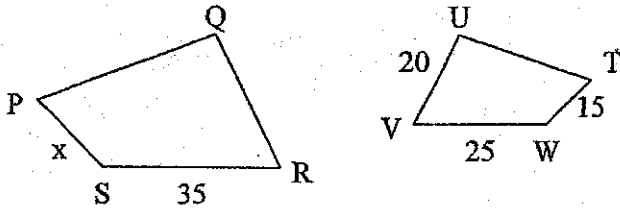
2. Are the following triangles similar?



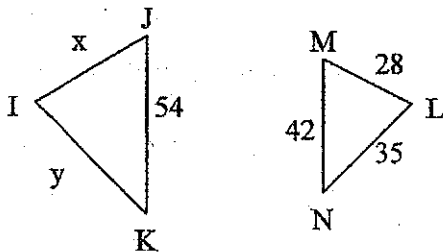
Similar Figures

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 $PQRS \sim TUVW$, write a proportion to find the length of \overline{PS} .



2. Given $\triangle IJK \sim \triangle LMN$, 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?

Math 7 – Assignment #8

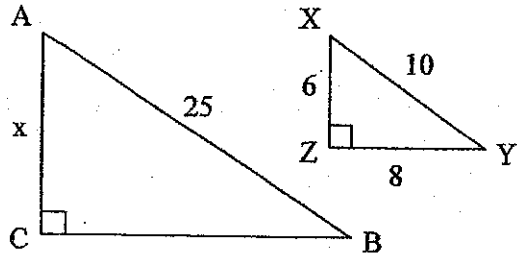
Name _____

Problem Solving with Similar Figures

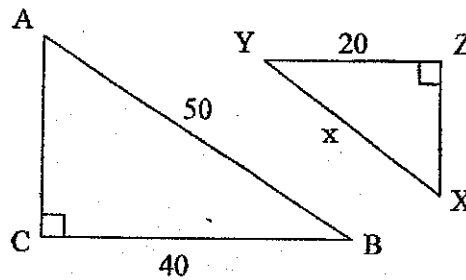
Date _____

Find the missing side lengths in each pair of similar figures.

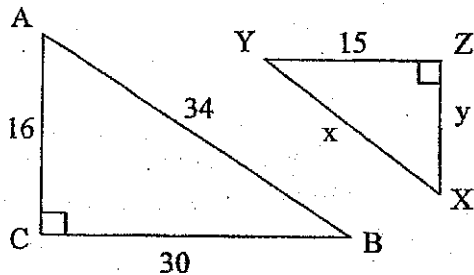
1. $\triangle ABC \sim \triangle XYZ$



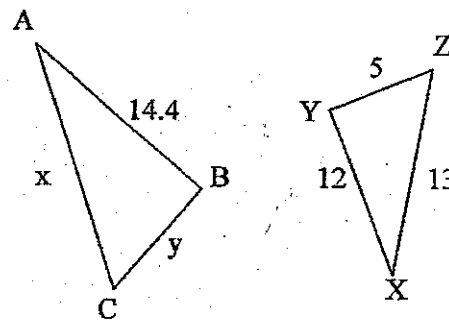
2. $\triangle ABC \sim \triangle XYZ$



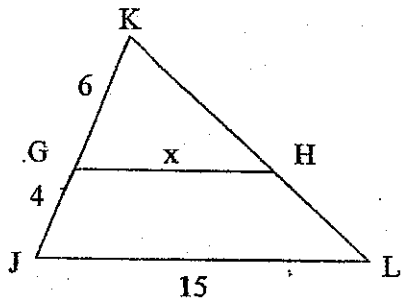
3. $\triangle ABC \sim \triangle XYZ$



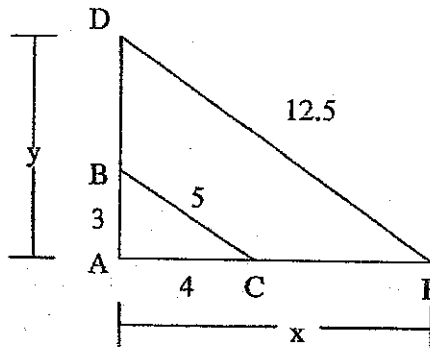
4. $\triangle ABC \sim \triangle XYZ$



5. $\triangle JKL \sim \triangle GKH$



6. $\triangle ABC \sim \triangle ADE$



Use similar triangles to find the missing information.

7. A giraffe is 18 feet tall and casts a shadow of 12 feet. Corry casts a shadow of 4 feet. How tall is Corry?

8. When a Ferris wheel casts a 20-meter shadow, a man 1.8 meters tall casts a 2.4-meter shadow. How tall is the Ferris wheel?
9. A flagpole casts a shadow 28 feet long. A person standing nearby casts a shadow eight feet long. If the person is six feet tall, how tall is the flagpole?
10. A photograph measuring four inches wide and five inches long is enlarged to make a wall mural. If the mural is 120 inches wide, how long is the mural?
11. A 9-foot ladder leans against a building six feet above the ground. At what height would a 15-foot ladder touch the building if both ladders form the same angle with the ground?
12. Chris wants to reduce a triangular pattern with sides 16, 16 and 20 centimeters. If the longest side of the new pattern is to be 15 cm, how long should the other two sides be?