Math 7 – Assignment #8

Problem Solving with Similar Figures
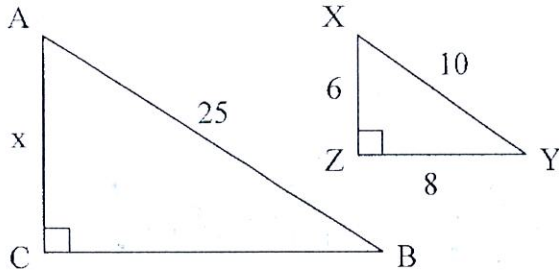
Name _____

Date _____

**Find the missing side lengths in each pair of similar figures.** Find scale factor
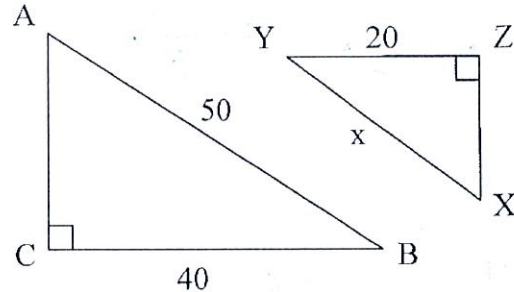
1.  $\triangle ABC \sim \triangle XYZ$



$$\frac{x}{6} = \frac{25}{10} \qquad \boxed{x = 15}$$
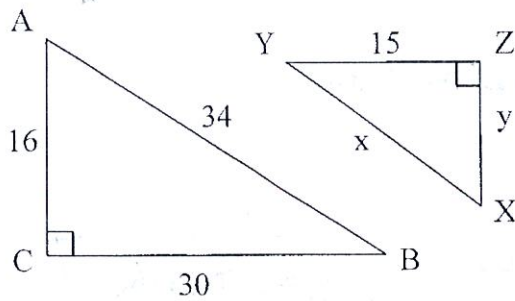
scale factor = 2.5

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



$$\frac{x}{50} = \frac{20}{40} = \qquad \boxed{x = 25}$$
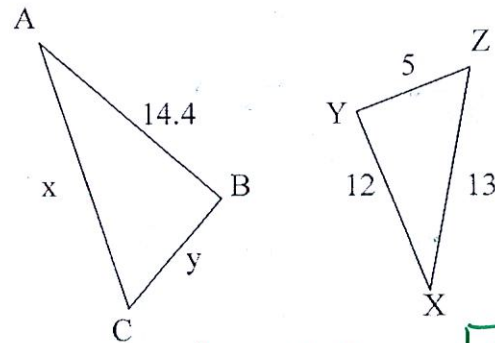
scale factor = $\frac{1}{2}$

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



$$\frac{x}{34} = \frac{15}{30} \qquad \boxed{\begin{array}{l} x = 17 \\ y = 8 \end{array}}$$

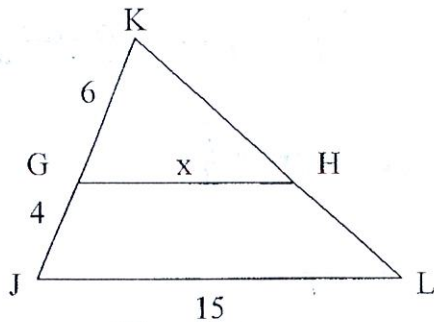scale factor = $\frac{1}{2}$

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



$$\frac{x}{13} = \frac{y}{5} = \frac{14.4}{12} \qquad \boxed{\begin{array}{l} x = 15.6 \\ y = 6 \end{array}}$$
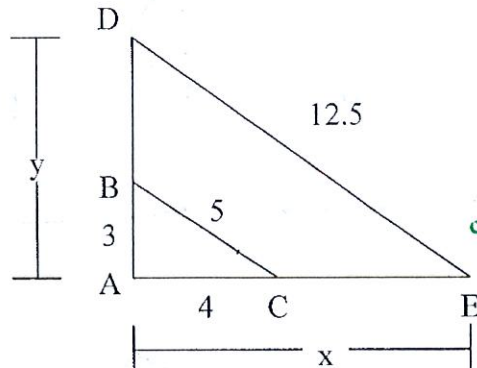
scale factor = 1.2

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



$$\frac{x}{15} = \frac{6}{10} \qquad \boxed{x = 9}$$

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



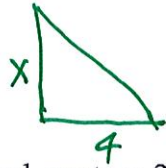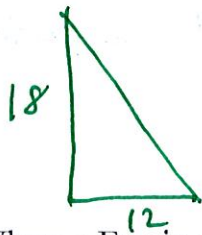scale factor =
.4 (small to big)
or 2.5 (big to small)

$$\frac{5}{12.5} = \frac{4}{x} = \frac{3}{y} \qquad \boxed{\begin{array}{l} x = 10 \\ y = 7.5 \end{array}}$$

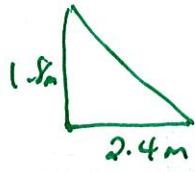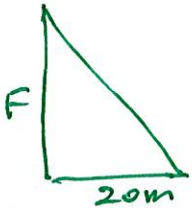**Use similar triangles to find the missing information.**

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?

$$\frac{x}{18} = \frac{4}{12} \qquad \boxed{x = 6 \text{ feet}}$$
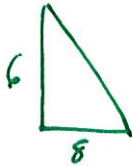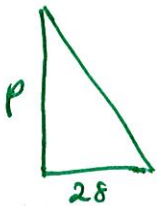
scale factor $\frac{1}{3}$

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?

$$\frac{F}{1.8} = \frac{20}{2.4} \qquad \boxed{F = 15m}$$
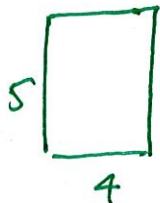
scale factor $8\frac{1}{3}$

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?

$$\frac{P}{6} = \frac{28}{8} \qquad \boxed{P = 21 \text{ feet}}$$
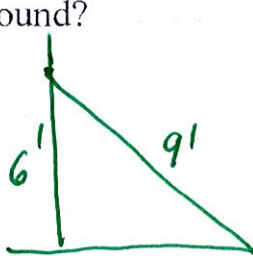
scale factor = 3.5

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?

$$\frac{L}{5} = \frac{120}{4} \qquad \boxed{L = 150 \text{ inches}}$$
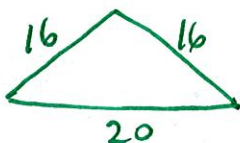
scale factor = 30

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?

$$\frac{h}{6} = \frac{15}{9} \qquad \boxed{h = 10 \text{ feet}}$$

scale factor = $\frac{5}{3}$

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?

$$\frac{S}{16} = \frac{15}{20} \qquad \boxed{S = 12 \text{ cm}}$$

scale factor = $\frac{3}{4}$