# Practice with Scale Drawings

Geometric figures can be reduced or enlarged. When this change happens, every length of the figure is reduced or enlarged equally (proportionally), and the measures of the corresponding angles stay the same.

The ratio of any two corresponding sides of the original and new figure is called a scale factor. The scale factor may be written as a percent or a fraction. It is common to write new figure measurements over their original figure measurements in a scale ratio, that is, $\frac{NEW}{ORIGINAL}$.

Example
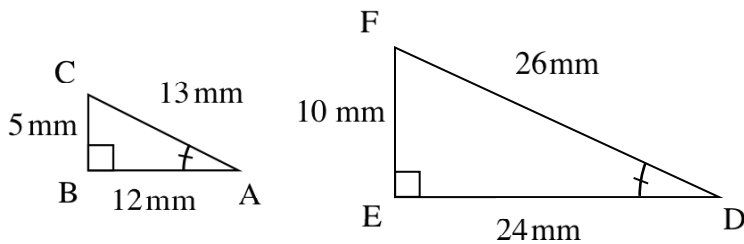
Side length ratios:

original triangle   new triangle

$$\frac{DE}{AB} = \frac{24}{12} = \frac{2}{1}$$

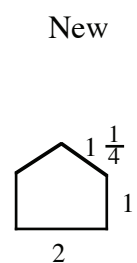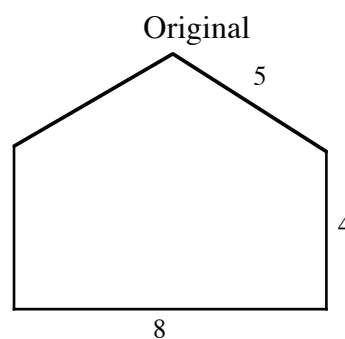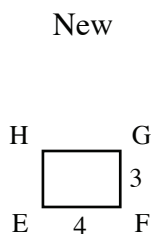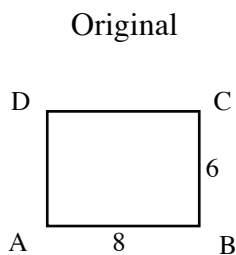$$\frac{FD}{CA} = \frac{26}{13} = \frac{2}{1}$$

$$\frac{FE}{CB} = \frac{10}{5} = \frac{2}{1}$$

The scale factor for length is 2 to 1.

Determine the scale factor for each pair of similar figures in problems 1 through 4.

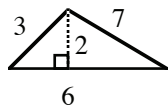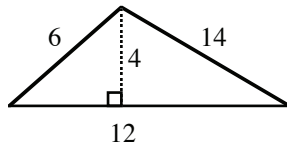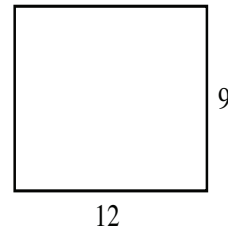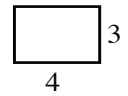1.   2.

3.

Original   New

4.

Original   New

5. A triangle has sides 5, 12, and 13. The triangle was enlarged by a scale factor of 300%.

   a. What are the lengths of the sides of the new triangle?

   b. What is the ratio of the perimeter of the new triangle to the perimeter of the original triangle?

6. A rectangle has a length of 60 cm and a width of 40 cm. The rectangle was reduced by a scale factor of 25%.

   a. What are the dimensions of the new rectangle?

   b. What is the ratio of the perimeter of the new rectangle to the perimeter of the original rectangle?