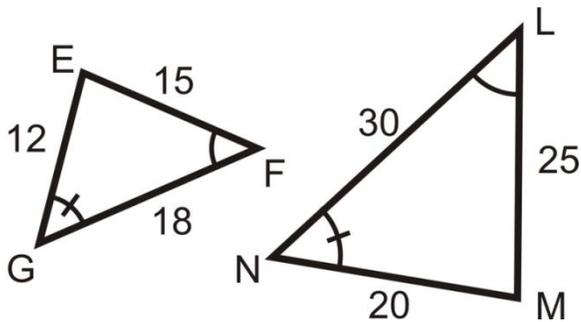


Objective: Find missing measures and perimeters of similar polygons

Review: Use the following triangles to answer the questions that follow:



1) Are the triangles similar? _____

2) What is the scale factor of the corresponding sides? _____

3) What is the perimeter of each triangle above? _____

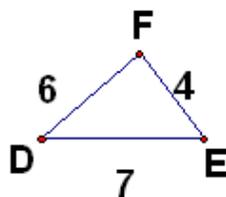
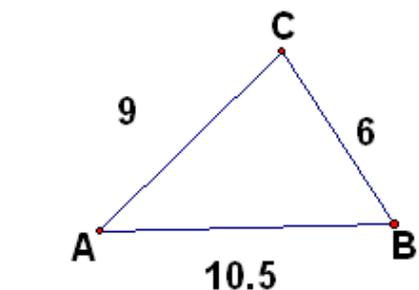
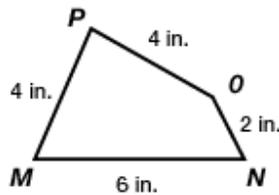
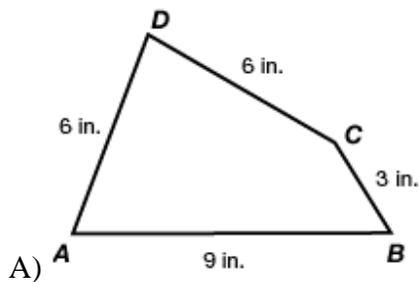
4) What is the scale factor between the perimeters of each triangle? _____

5) What do you notice between the scale factors of the corresponding sides and the perimeters of the triangles above? _____

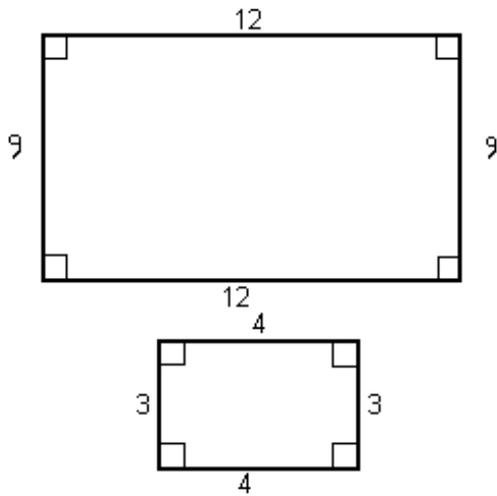
If two polygons are similar, then the ratio of their perimeters is _____ to the ratio of their corresponding side lengths.

The theorem above allows us to find the ratio of the perimeter of two similar polygons without having to find the perimeters themselves. You would just need to find the scale factor of a pair of corresponding sides.

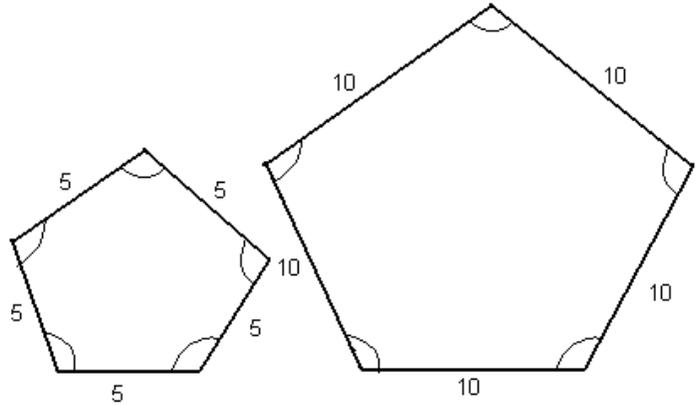
Example 1: What is the scale factor of the perimeters of the similar polygons below?



Practice 1: What is the scale factor of the perimeters of the similar polygons below?



A)

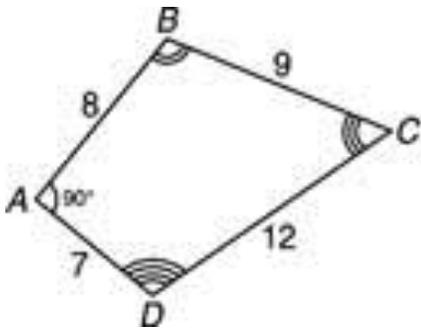


B)

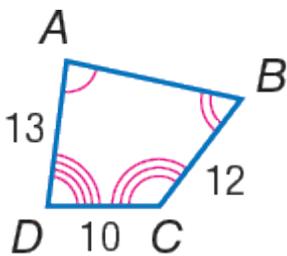
We can also find the perimeter of one of the similar polygons, if we know the perimeter of the other one, and the scale factor between the sides and perimeters. We would need to set up a proportion with the scale factor on one side, and the perimeters on the other. Remember that the ratios have to follow the same format both times.

Example 2:

What is the perimeter of the second polygon?



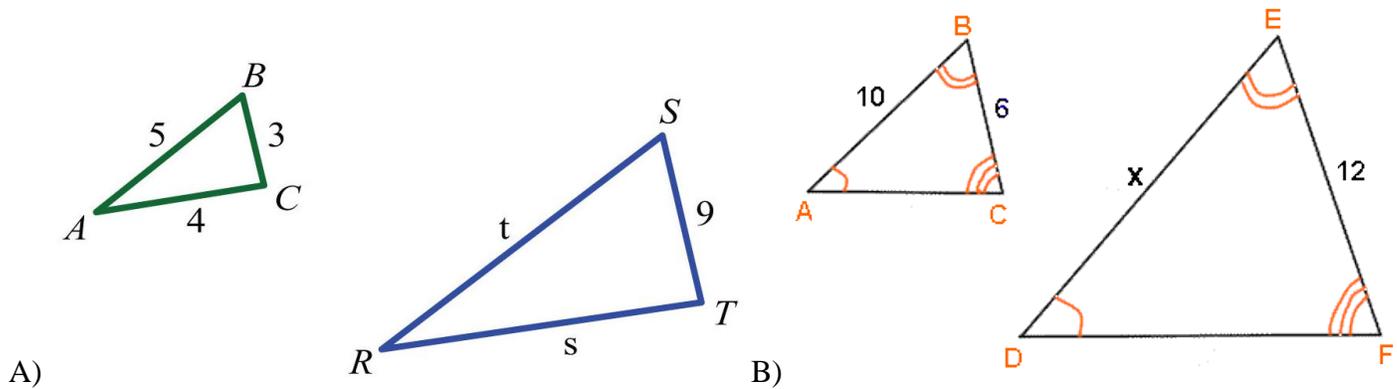
A)



B)

C) Given a pair of similar polygons where the perimeter of the first polygon is 12 cm, and the scale factor between both polygons is 5:7, what is the perimeter of the second polygon?

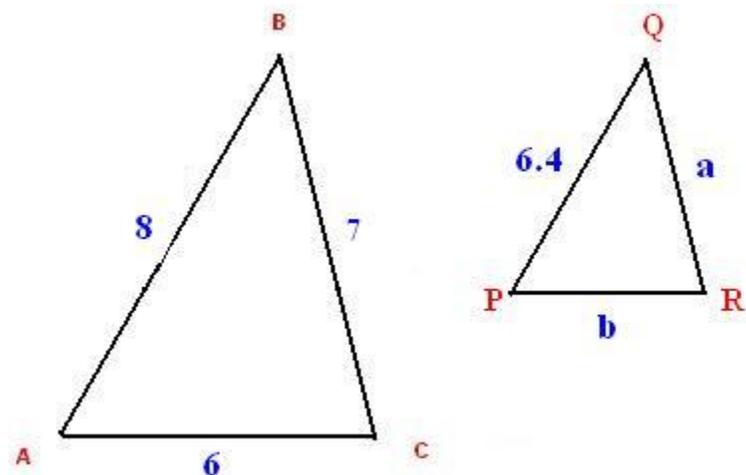
Practice 2: What is the perimeter of the second polygon?



C) Given a pair of similar polygons where the perimeter of the first polygon is 15 cm, and the scale factor between both polygons is 3:2, what is the perimeter of the second polygon?

Besides the perimeter, we can also find a missing side length if we know the scale factor between the perimeters and the sides and, at least, one side length.

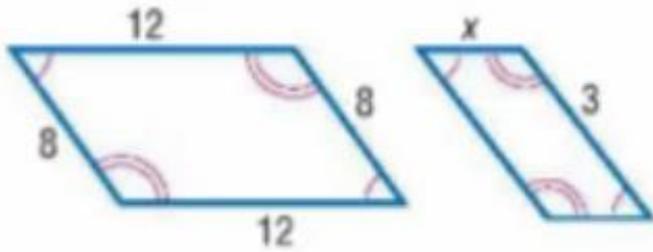
Example 3: The perimeter of the second triangle is 16.8 units. What is b ?



B) Given a pair of similar polygons where the perimeter of the first one is 20, the perimeter of the second one is 15, and the measure of one of the sides of the first one is 4, what is the length of its corresponding side?

Practice 3:

A) The perimeter of the second polygon is 10. What is x ?



B) Given a pair of similar polygons where the perimeter of the first one is 38, the perimeter of the second one is 52, and the measure of one of the sides of the first one is 12, what is the length of its corresponding side?