

Lesson 2.3.6: SAS and SSS for Similarity

Targets:

1. I can use the Side-Side-Side similarity shortcut to determine whether triangles are similar.
2. I can use the Side-Angle-Side similarity shortcut to determine whether triangles are similar.

Warm Up

1. Choose three lengths that represent the sides of a triangle. Draw the triangle with your chosen lengths using construction tools.
2. Multiply each length in your original triangle by 2 to get three corresponding lengths of sides for a second triangle. Draw your second triangle using construction tools.
3. Do your constructed triangles appear to be similar? Explain your answer.
4. Do you think that the triangles can be shown similar without knowing the angle measures?

SSS Similarity Shortcut

The side-side-side criterion for two triangles to be similar is as follows:

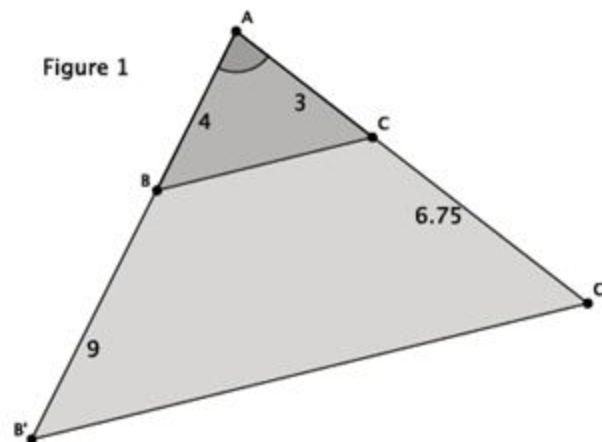
When all three pairs of corresponding sides are in proportion, we can conclude that the triangles are similar by side-side-side criterion. We can use the SSS criterion to determine if a pair of triangles are similar.

SSS Similarity Shortcut: *If all three corresponding sides of two triangles are proportional, then the two triangles are similar.*

Explore SAS Criteria

Examine the figure and answer the questions to determine whether or not the triangles shown are similar.

- What information is given about the triangles in Figure 1?
- How can the information provided be used to determine whether they are similar?
- Compare the corresponding side lengths of the two triangles. What do you notice?
- Based on your work in parts (a)–(c), determine whether we have enough information to say that these two triangles are similar. Explain.



SAS Similarity Shortcut

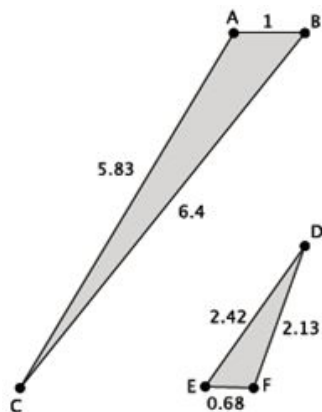
The *side-angle-side criterion* for two triangles to be similar is as follows:

SAS Similarity Shortcut: *If two triangles have two corresponding sides that are proportional AND the included angles are congruent, then the two triangles are similar.*

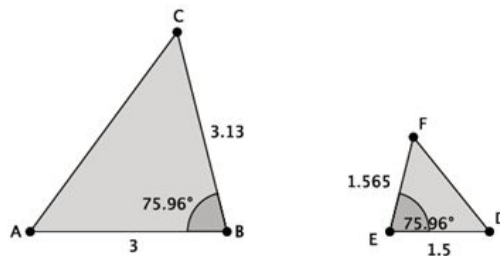
Practice 1 and 2

Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.

Practice 1



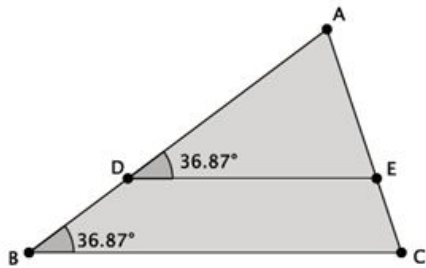
Practice 2



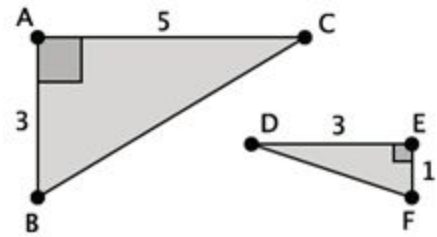
Practice 3 and 4

Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.

Practice 3



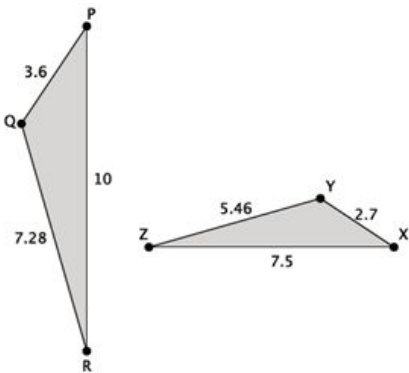
Practice 4



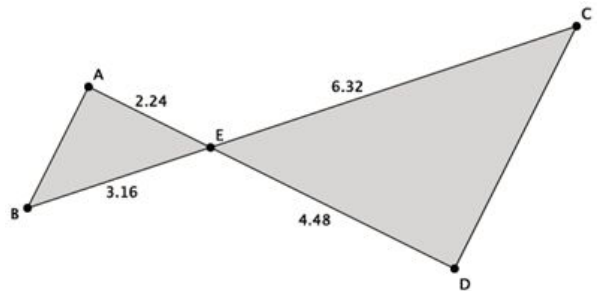
Practice 5 and 6

Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.

Practice 5



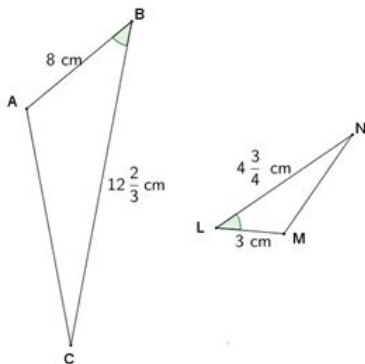
Practice 6



Exit Ticket

Given the two sets of triangles below, determine if the triangles are similar. If so, write a similarity statement, and state the criterion used to support your claim.

Set 1



Set 2

