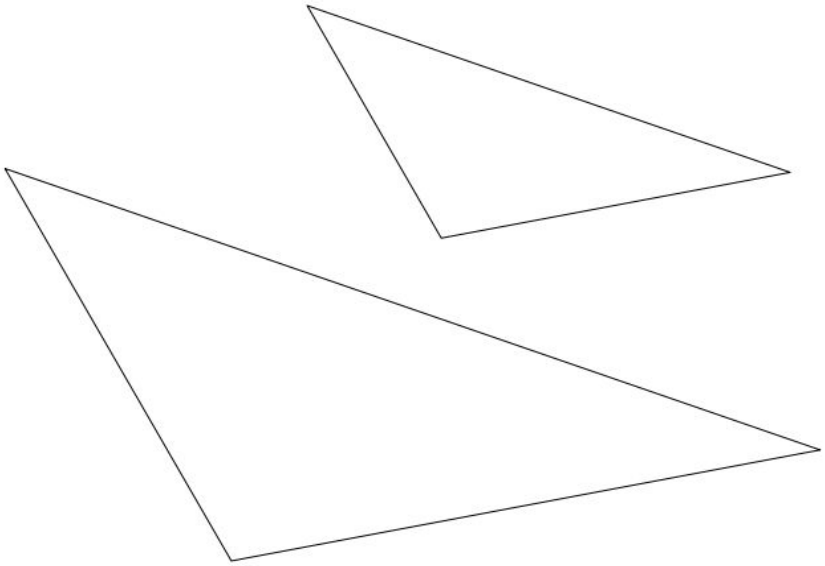
2.3.1 What information do I need?

Conditions for Triangle Similarity

2-67

a). Measure all side lengths and angle measures in the two triangles. Label them.



b). Are the two triangles similar? Explain how you know.

c). Assuming that the corresponding sides of these similar triangles are parallel, demonstrate that there is a dilation that carries one onto the other by locating the point of dilation for the two triangles.

2-68 *Think, discuss, and make a prediction.*

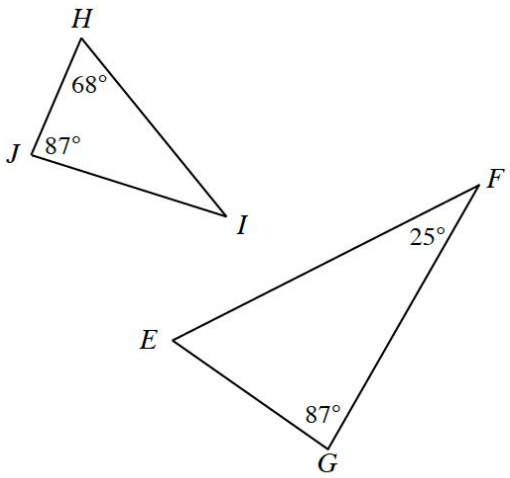
a). Do you think the two triangles must be similar if all three pairs of corresponding angles are congruent? Write your prediction and explain why, and discuss with your teammates.

b). **Use e-tool 2-68b** Experiment with the e-tool and/or your own drawings. Create a 38˚, 62˚, and 80˚ triangle. Can you make another triangle with the same angles that is not similar?

c). Use e-tool 2-68c Describe a sequence of transformations that would show that two triangles with the same angles measures are similar.

2-69

Are the two triangles similar?



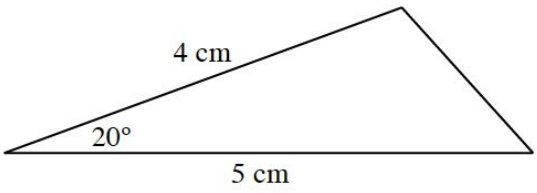
a) Are the corresponding angle measures equal and possible as the interior measures of triangles? Show your work.

b) How many pairs of angles need to be congruent to be sure that triangles are similar? Why?

c). How could you abbreviate this similarity condition? (Tip: AAA , ASA, etc.)

2-70 [Use e-tool]

What if you know one angle measure and two corresponding sides? Do these conditions make triangles similar?



a). You have one angle measure and two side lengths. If another triangle has the same corresponding angle measure and two proportional sides lengths, are the triangles similar? Do you think this is always true? Why?

b). How would you name this triangle similarity condition?

2-71

What other triangle similarity conditions involving sides and angles might there be? Create a list of them with your teammates.

2-72 Use e-tool 2-72

Is SSS a similarity condition? Make a prediction.

Experiment with this idea. Can you create two triangles with proportional side lengths that are not similar? Show your work and explain your idea.

1). Triangle 1: side lengths: 3, 5, 7
Triangle 2: side lengths: 6, 10, 14

2) Triangle 1: side lengths: 3, 4, 5
Triangle 2: side lengths 6, 8, 10

2-73

Read in the textbook, and write your team's answer below.

2-74

Read in the textbook, and write your team's answers below.

a).

b).

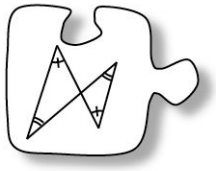
c).

Name your team's final Triangle Similarity Conditions:

1. _____
2. _____

3. _____

2.3.2 Are the triangles similar?

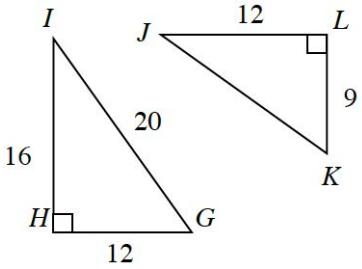


Determining Similar Triangles

2-90 & 2-91

Determine if the following triangles are similar. If so, prove it with a flowchart. Then, calculate the lengths of the segments listed. If it's not possible to find the length of a segment, explain why not.

a).



a). Find segment *JK*

a) Flowchart or two-column proof:

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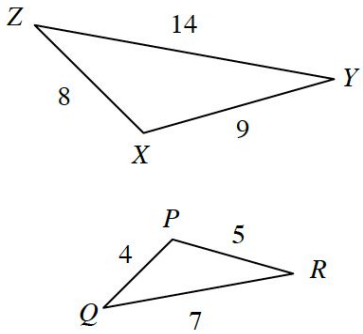
b).



b). Flowchart or two-column proof:

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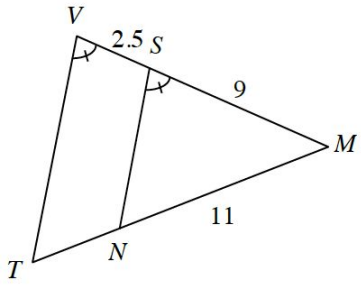
c).



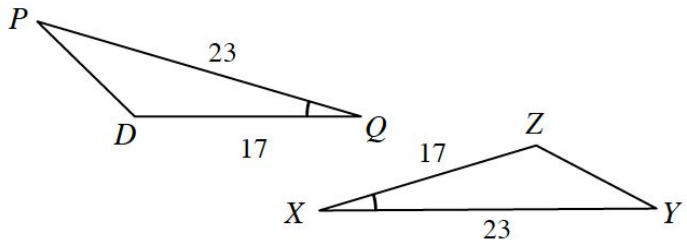
c). Flowchart or two-column proof:

c). Find segment *TN:* _____

c). Find segment *VT*: _____

2-92

Are the following triangles similar? How do you know?



a). Create a flowchart or two-column proof:

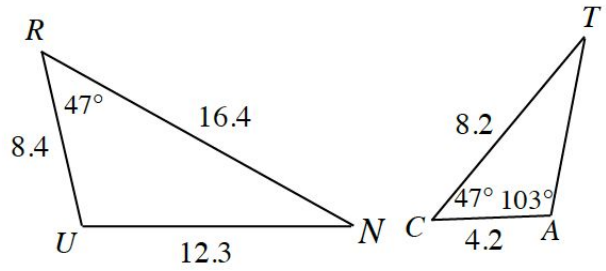
b). Think about *scale factor*. Are these triangles more than just similar? Are they congruent too? If so, explain how you know?

c). Finish the conjecture:

Similar triangles with a scale factor of 1 are ….

2-93

Are these two triangles similar?



a). Flowchart or two-column proof:

b). Are ΔCAT and ΔRUN congruent? Explain why or why not.

c). Determine the missing side lengths and angle measures and show all of your work.

m∠U: _____

m∠N: _____

m∠T: _____

m∠U: _____

Side AT: _____