

You have worked with segments and angles in triangles. Now you will explore inequalities with triangles.

Hinge Theorem

If two sides of one triangle are congruent to those of another triangle, and if the included angle of the first triangle is greater than that of the second triangle, then the third side of the first triangle is longer than that of the second triangle.

Example:

Compare the measures of BC and EF .

Step 1: Compare the angle measures of the sides opposite BC and EF .

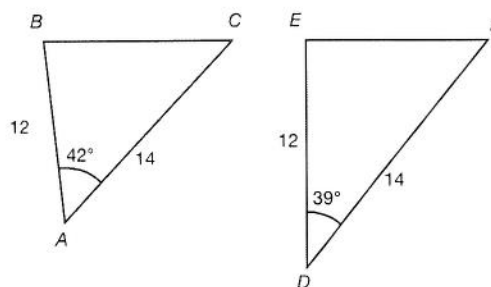
The opposite angle of $BC = 42^\circ$.

The opposite angle of $EF = 39^\circ$.

Step 2: Make a comparison.

The side opposite the greater angle is longer.

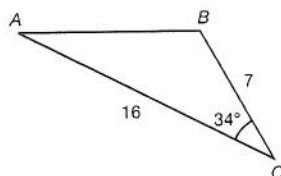
$BC > EF$



Practice

Complete the statements to solve each problem.

1. Compare the measures of AB and DE .

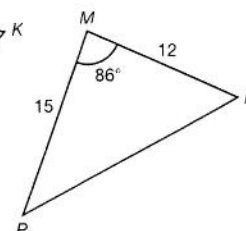
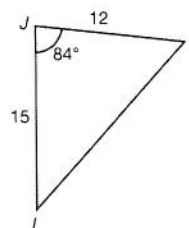
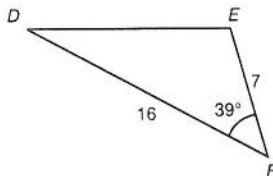


AB opposite angle = _____

DE opposite angle = _____

_____ < DE

2. Compare the lengths of KL and NP .



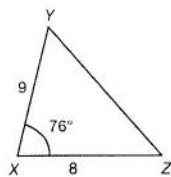
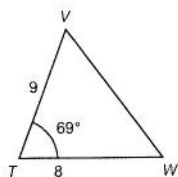
KL opposite angle = _____

NP opposite angle = _____

_____ < _____

Compare the measures.

3. Compare the measures of VW and YZ .



4. Compare the measures of JL and MP .

