

5.3 Inequalities in One Triangle

G.T.6 Inequalities in One Triangle.

Properties of Inequalities

The following properties are true for all real numbers a, b, and c

Transitive Property _____

Addition Property _____

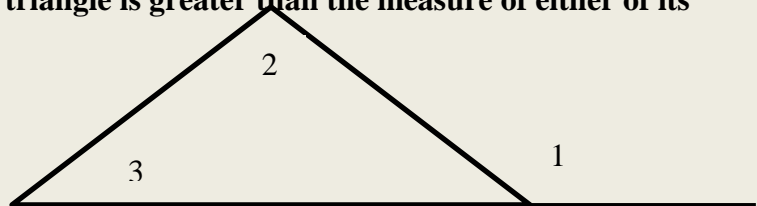
Subtraction Property _____

Exterior Angle Theorem

The measure of the exterior angle of a triangle is greater than the measure of either of its corresponding remote interior angles.

$m\angle 1 > m\angle 3$

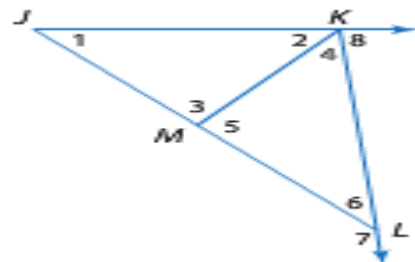
$m\angle 1 > m\angle 2$



Example 1:

List all the angles with a measure less than the $m\angle 7$

List all of the angles that are greater than the $m\angle 6$

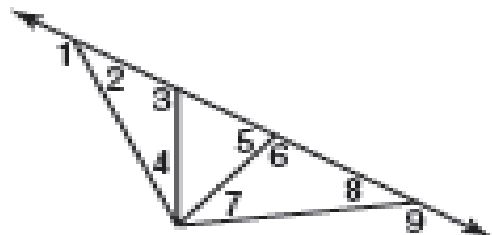


Example 2:

Measures are less than $m\angle 1$

Measures are less than $m\angle 3$

Measures are greater than $m\angle 7$



Angle-Side Relationships in Triangles

Theorem 5.9

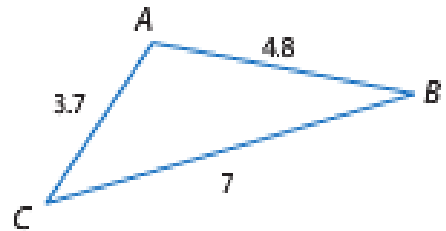
If one side of a triangle is longer than the other side of a triangle then the angle opposite the longer side has a greater measure than the angle opposite the shorter side.

Theorem 5.10

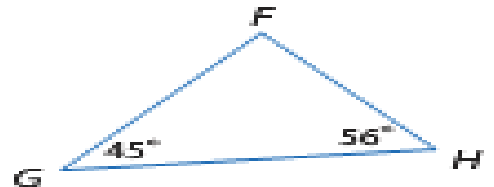
If one angle of a triangle has a greater measure than another angle, then the side opposite the greater angle is longer than the side opposite the lesser angle

Example 3:

List the angles of triangle ABC in order from largest to smallest.



List the sides of triangle FGH in order from shortest to longest.



Example 4:

List the angles and sides of $\triangle WXY$ in order from smallest to largest.

