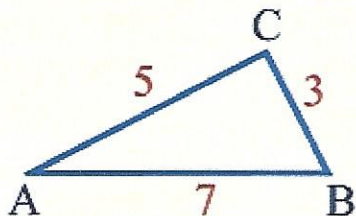


## Triangle Properties

Do Now

**Theorem 1:**

The sum of the lengths of any two sides of a triangle must be greater than the third side.



$$AC + CB > AB \quad 5 + 3 > 7$$

$$CB + AB > AC \quad 3 + 7 > 5$$

$$AB + AC > CB \quad 7 + 5 > 3$$

If these inequalities are NOT true, you do not have a triangle!

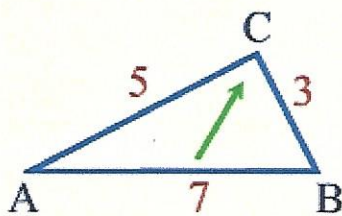
**Theorem 2:**

In a triangle, the longest side is across from the largest angle and vice versa.

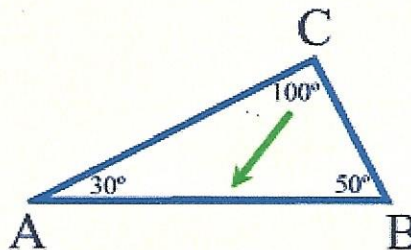
also ...

**Theorem 3:**

In a triangle, the smallest angle is across from the smallest side and vice versa.



Since 7 is the longest side in the triangle,  $\angle C$ , across from it, is the largest angle.



Since  $100^\circ$  is the largest angle in this triangle,  $\overline{AB}$ , across from it, is the longest side.



State if the three numbers can be the measures of the sides of a triangle.

1) 7, 5, 4

2) 3, 6, 2

3) 5, 2, 4

4) 8, 2, 8