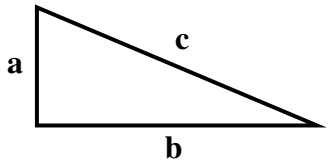
Geometry Note-Taking Guide **Name:**_____

Period:____

Section 7.2 - Proving Triangles are Right, Acute, or Obtuse

Proving a Triangle is a <u>Right</u> Triangle

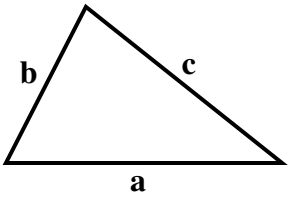
If $a^2 + b^2 = c^2$, then the triangle is a <u>right</u> triangle.



Proving a Triangle is an <u>Acute</u> Triangle

If $a^2 + b^2 > c^2$, then the triangle is an <u>acute</u> triangle.

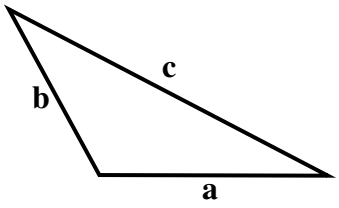
Note: A common mistake is thinking that "greater than" (>) means obtuse. Think the opposite.



Proving a Triangle is an <u>Obtuse</u> Triangle

If $a^2 + b^2 < c^2$, then the triangle is an <u>obtuse</u> triangle.

Note: A common mistake is thinking that "less than" (<) means acute. Think the opposite.



Important: a and b are always the smallest values and c is the largest.

Ex 1:
Classify a triangle with the given side lengths as right, acute, or obtuse.
Note: The side lengths are listed from smallest to largest.

a) 6, 8, 10 **b)** 6, 6, 10 **c)** 7,9,11

d) $\sqrt{8}, 4, 6$ **e)** $2\sqrt{3}, \sqrt{13}, 5$ **f)** $\sqrt{6}, \sqrt{8}, \sqrt{10}$

Ex 2:

The sides and classification of a triangle are given below. The length of the longest side is the integer given. What value(s) of x make the triangle?

a) x, x, 8; right **b)** x, x, 6; acute **c)** x, 3x , 10; obtuse