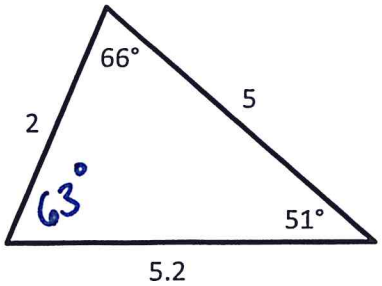
Determining Right Triangles

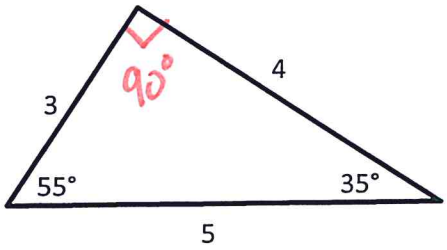
Classify the following triangles based on their angles:

A.)



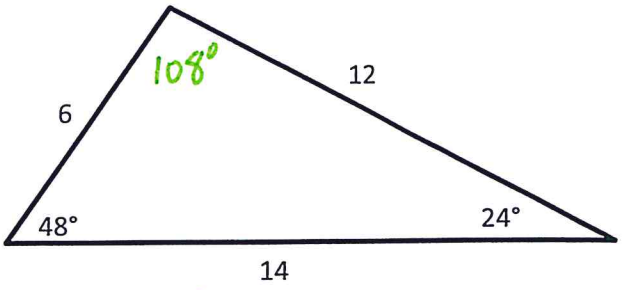
Acute

B.)



Right

C.)



Obtuse

Apply the Pythagorean Theorem for each triangle and try to identify any key information from your final answer. (c is always the largest side)

A.) $2^2 + 5^2 = 5.2^2$

$4 + 25 = 27.04$

$29 \neq 27.04$

a^2+b^2 c^2 smaller

B.) $3^2 + 4^2 = 5^2$

$9 + 16 = 25$

$25 = 25$ ✓

C.) $6^2 + 12^2 = 14^2$

$36 + 144 = 196$

$180 \neq 196$

a^2+b^2 c^2 larger

Conclusions/Observations?

- Only works for Rt. $\triangle$'s
- c^2 is too small in acute $\triangle$'s
- c^2 is too large in obtuse $\triangle$'s

If $a^2+b^2 > c^2$, then the triangle is Acute.

If $a^2+b^2 = c^2$, then the triangle is Right.

If $a^2+b^2 < c^2$, then the triangle is Obtuse.

Pythagorean Converse