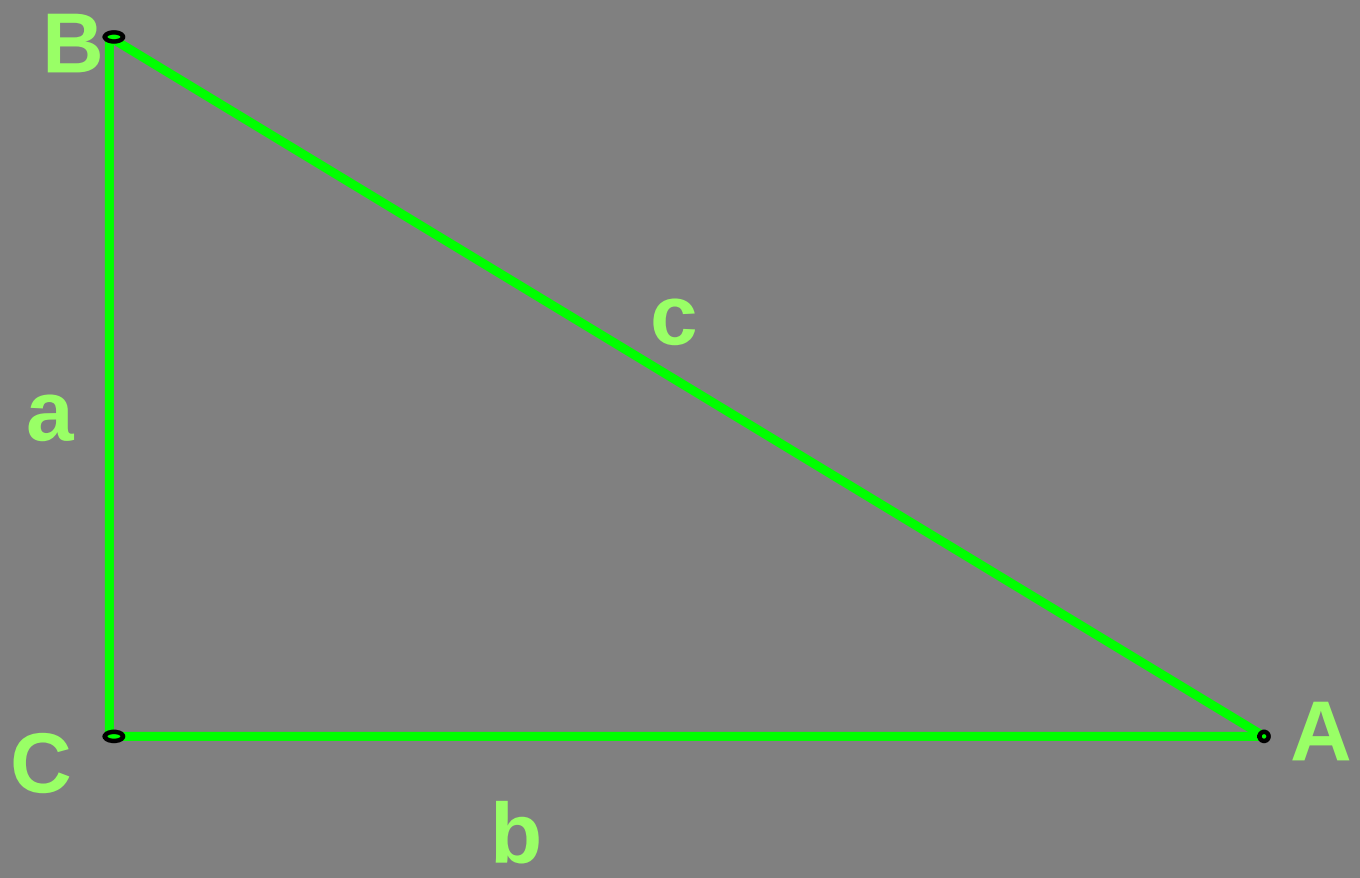
9.3 The converse of the Pythagorean thm

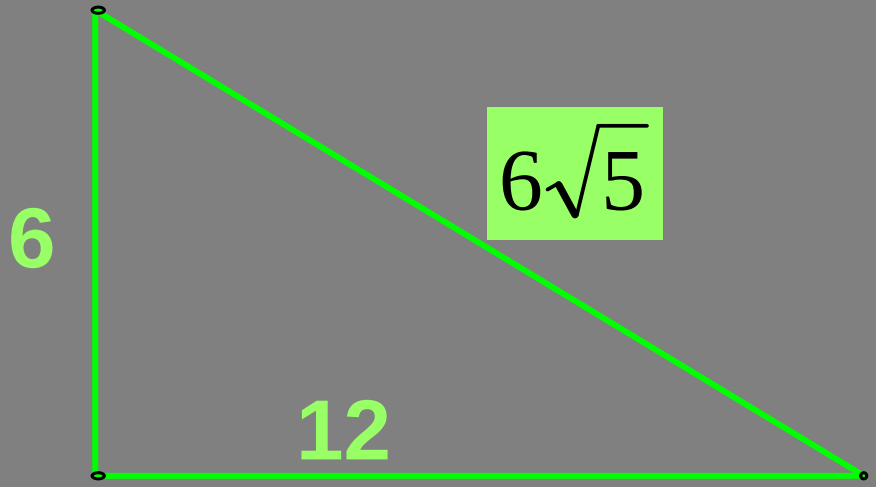
How do I use the Converse of the Pythagorean Theorem to solve problems? How do I use side lengths to classify triangles by their angle measures?

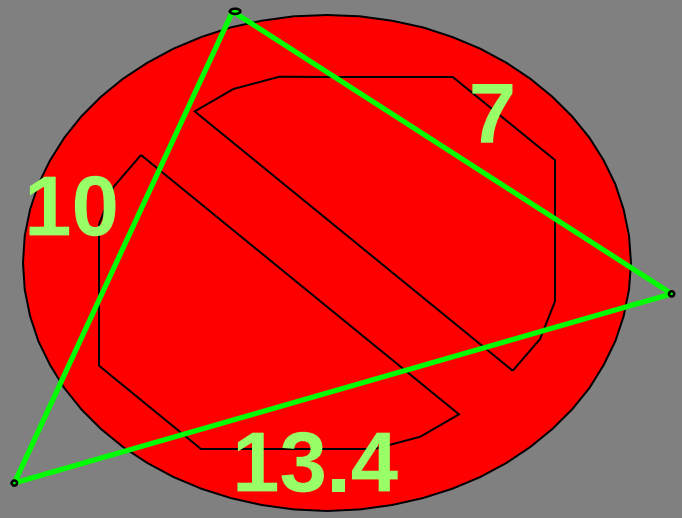
Thm 9.5
converse of the Pythagorean thm

- If $c^2=a^2+b^2$, then Δ ABC is a right Δ.



Example
Are the Δs right Δs?





$(6\sqrt{5})^2 \quad 6^2 \quad 12^2$

$36*5=36+144$

$180=180$

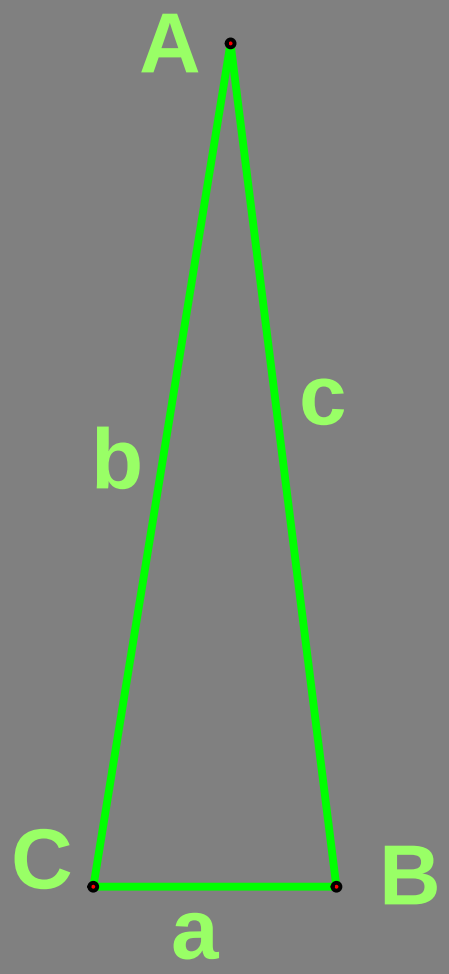
$13.4^2=10^2+7^2$

$179.56=100+49$

$179.56=149$

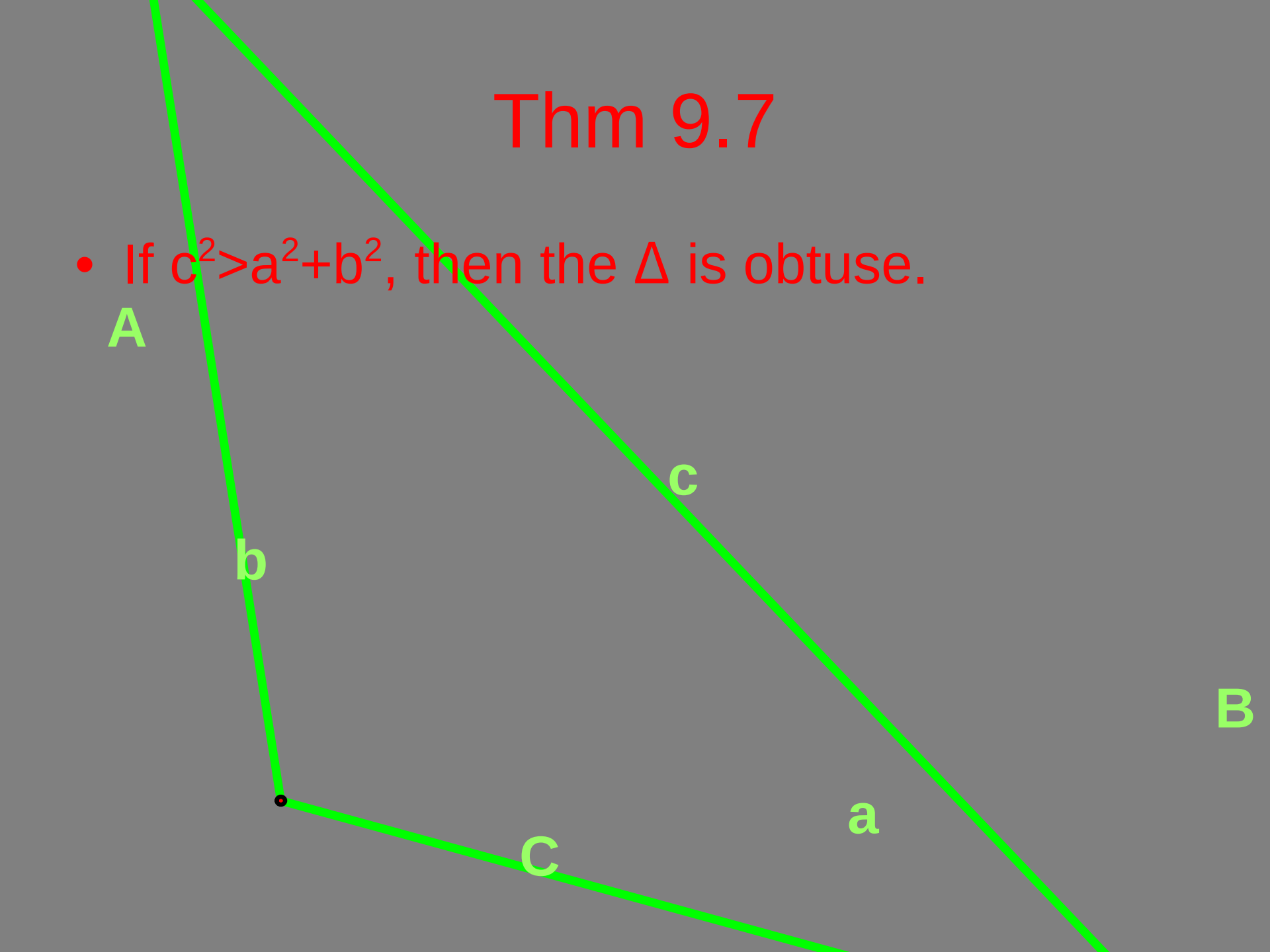
Thm 9.6

- If $c^2<a^2+b^2$, then the Δ is acute.



Thm 9.7

- If $c^2 > a^2 + b^2$, then the Δ is obtuse.



Example

Can the given side lengths form a Δ and if so, what kind of Δ would it be?

3.2, 4.8, 5.1

Yes, they form a Δ (by the Δ inequal. Thm)

3.2+4.8>5.1; 4.8+5.1>3.2; and 3.2+5.1>4.8

What kind of Δ?

$5.1^2 \_\_\_ 4.8^2+3.2^2$

$26.01 \_\_\_ 23.04+10.24$

$26.01 < 33.28$

acute

Assignment

WS 9.3B #2-16 even, 17,18