

Agenda

- Homework:

- “Pythagorean Theorem Solving for C” Worksheet
- AM

- Materials you need:

- Notebook

- On your DESK

- Approximate $\sqrt{27}$

- Solve for x:

$$2x + 6 = 24$$

Do Now

Approximate $\sqrt{27}$

Solve for x:

$$2x + 6 = 24$$

Agenda

- Pythagorean Theorem PRE-CR
- When done with CR,
 - Set up Cornell Notes (see TV for topic & EQ)
 - Guided notes available in the front
 - Set up foldable
- Notes on Pythagorean Theorem

Set Up Cornell Notes

- **Topic:** Pythagorean Theorem – Finding C
- **EQ:** What is the Pythagorean Theorem and how is it used to find the length of a hypotenuse?

Update Table of Contents

Date	Topic
11/23/15 (Pd 1 & 2)	Pythagorean Theorem – Finding C
11/24/15 (Pd 4)	

How are squares (x^2) and square roots related?



- They are INVERSE OPERATIONS

– Inverse Operations: operations that UNDO each other

$$\sqrt{x^2} = x$$

$$\left(\sqrt{x}\right)^2 = x$$

How do we apply this skill?



- Can use it to solve equations with squares or square roots:
- Example:

$$x^2 = 81$$
$$\sqrt{x^2} = \sqrt{81}$$

Step 1:

Step 2:

$$x = 9$$
$$\{-9, 9\}$$

Practice 😊

$$x^2 = 25$$

$$x^2 = 36$$

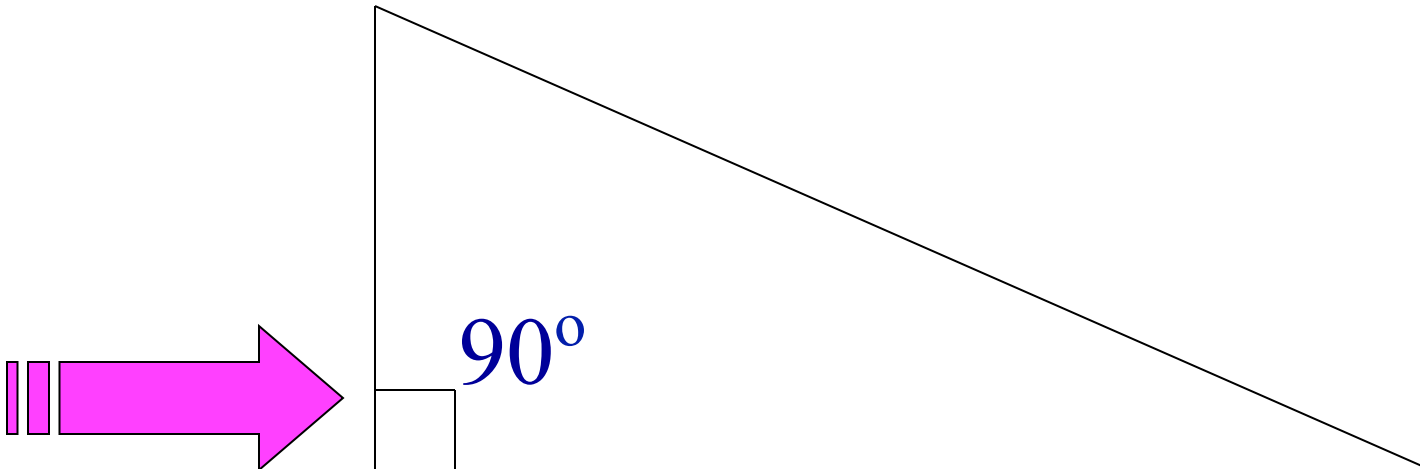
$$x^2 = 100$$

$$x^2 = 225$$



What is a right triangle?

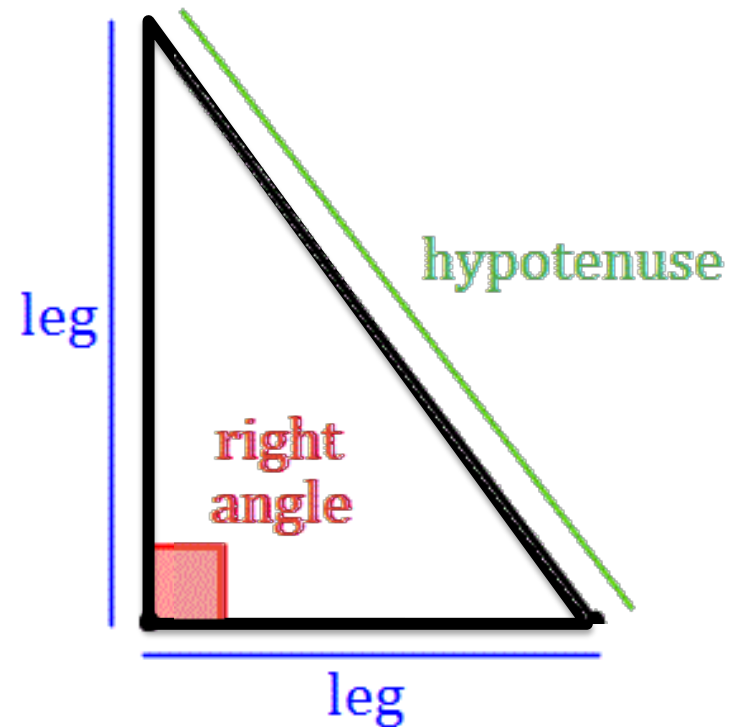
- A triangle that has a 90 degree angle (right angle) in it
 - Note: the small square tells you it's a right angle



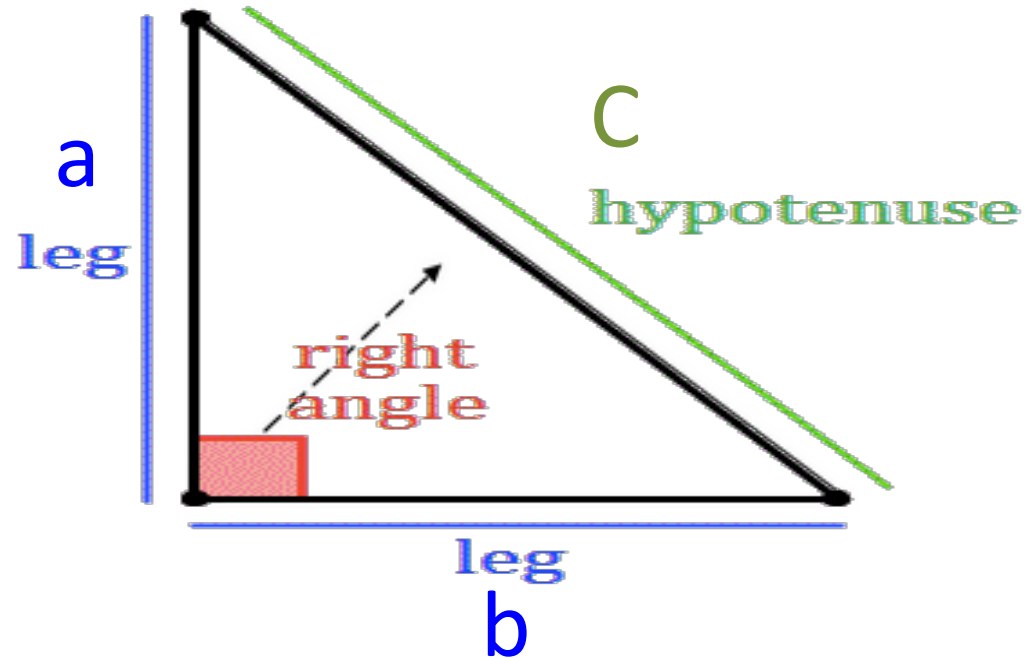
What are the different parts of a right triangle?



- **Legs** – Sides that create the right angle
- **Hypotenuse** – Longest side located diagonal of the right angle
- **Right Angle** – 90 degree angle



How do we label a right triangle? 

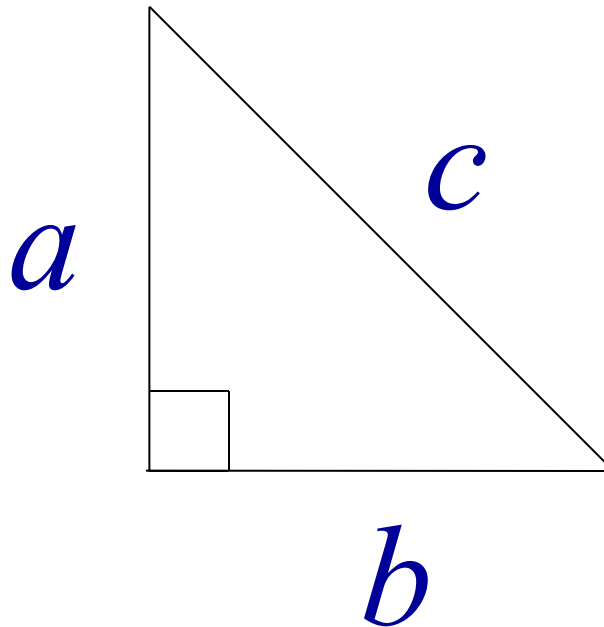


Who is Pythagoras?

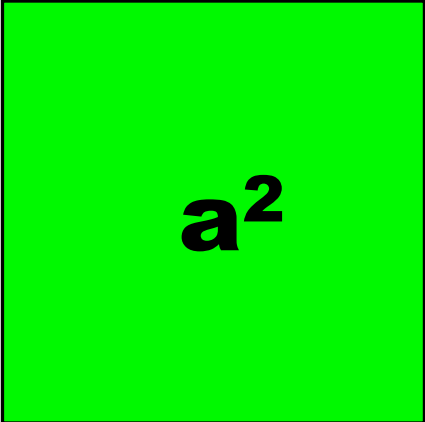
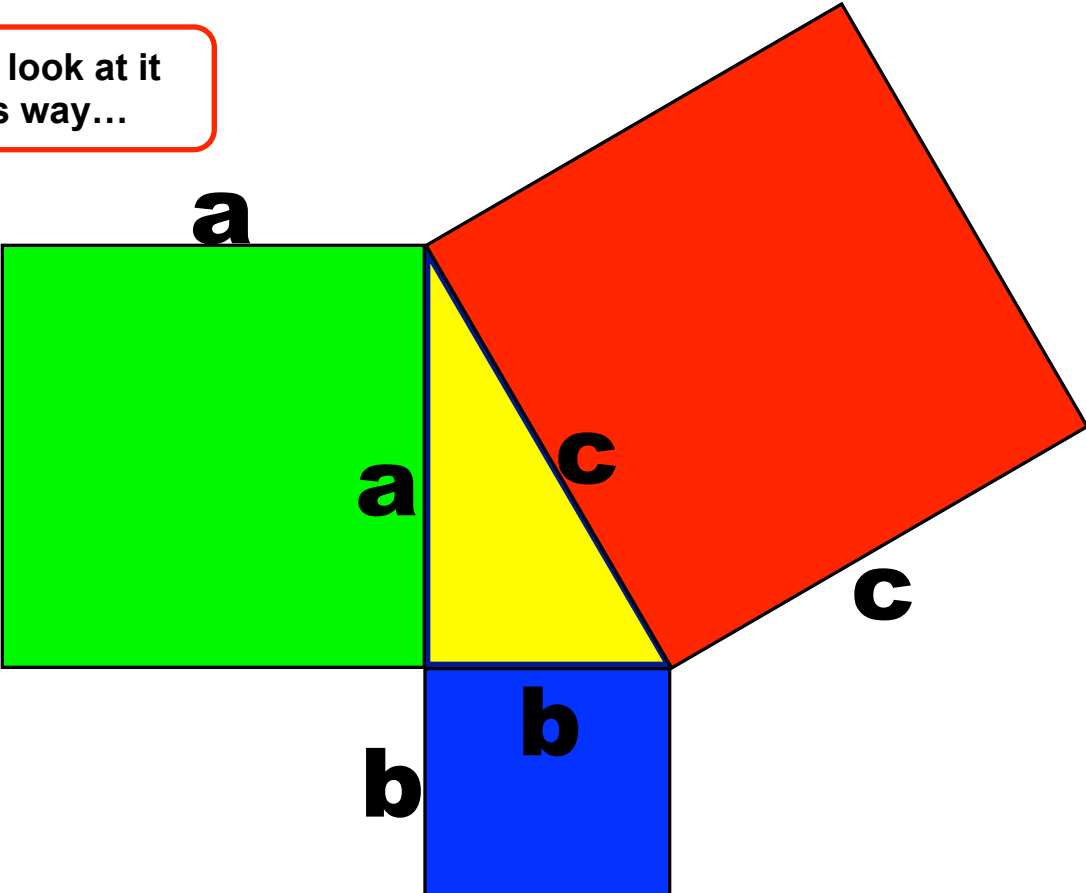


What is the Pythagorean Theorem? 

$$a^2 + b^2 = c^2.$$



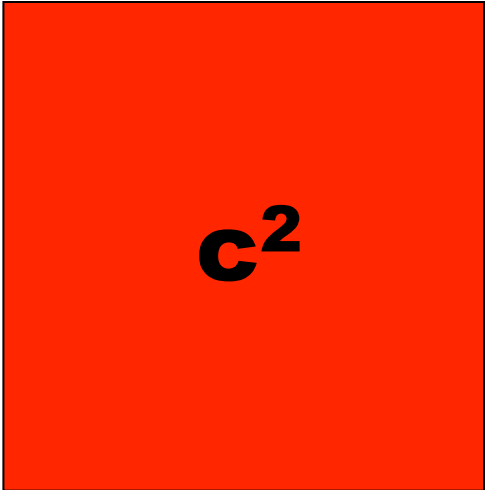
Let's look at it this way...



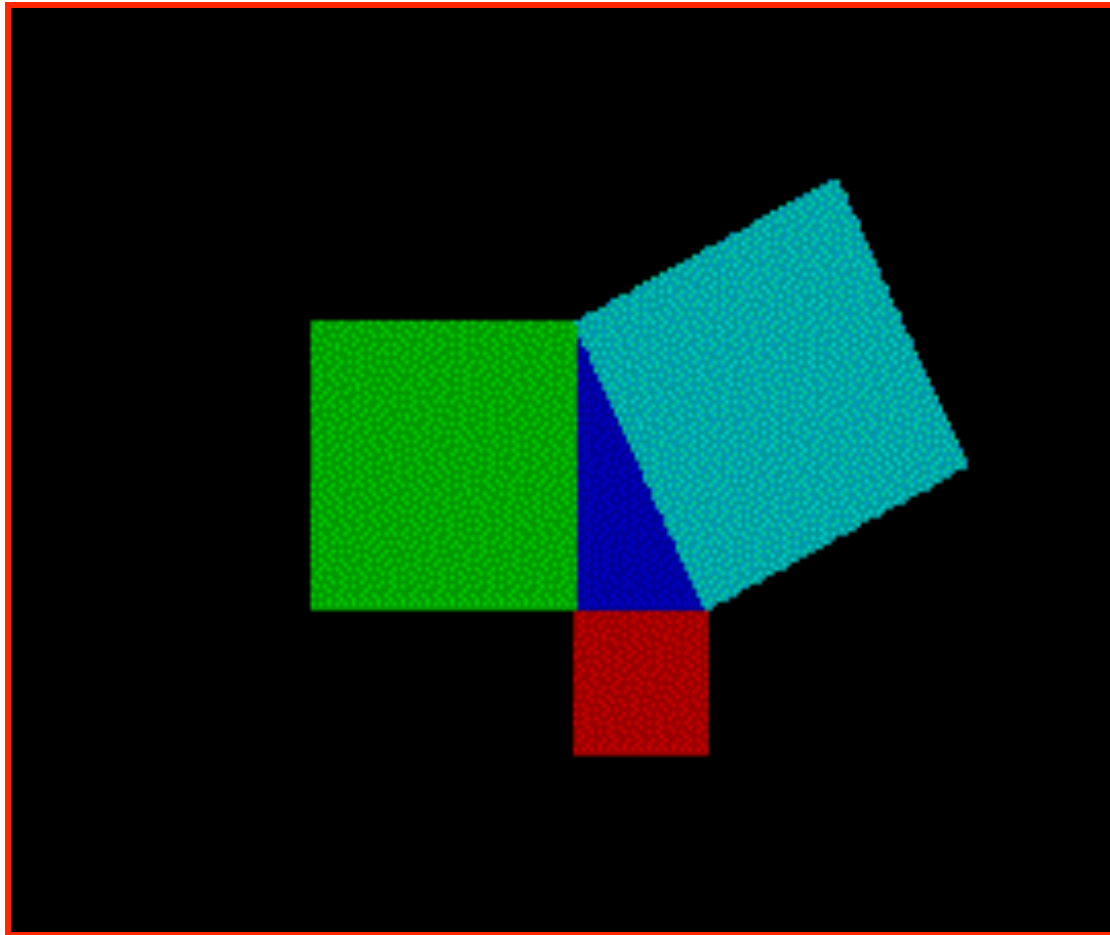
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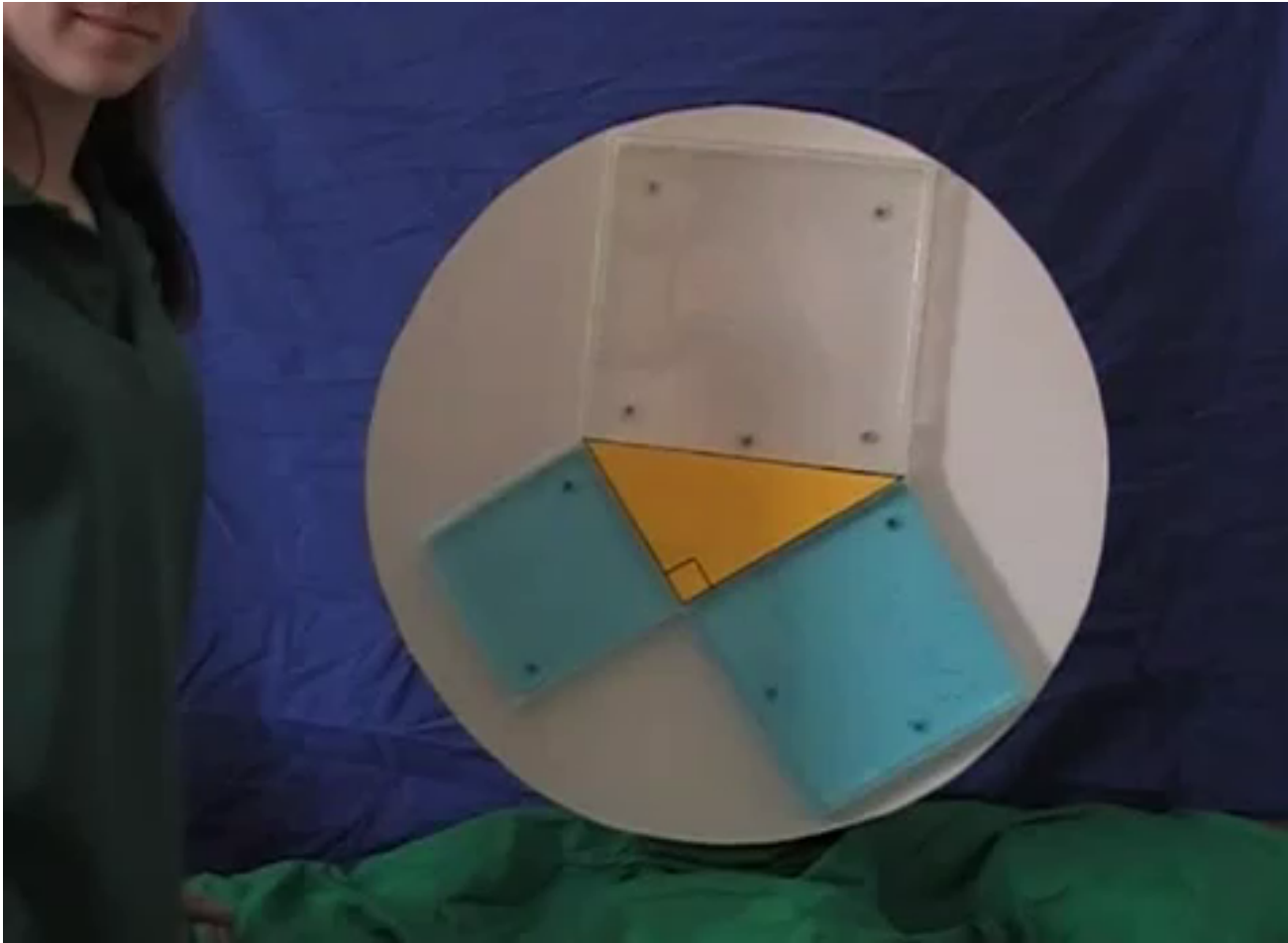
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Proof



One more example



How do you use the Pythagorean Theorem to determine if a triangle is a right triangle?



Solve to see if it's a right triangle

1) Label each of the sides

2) Plug into the Pythagorean Theorem & Solve

$$(5)^2 + (12)^2 = (13)^2$$

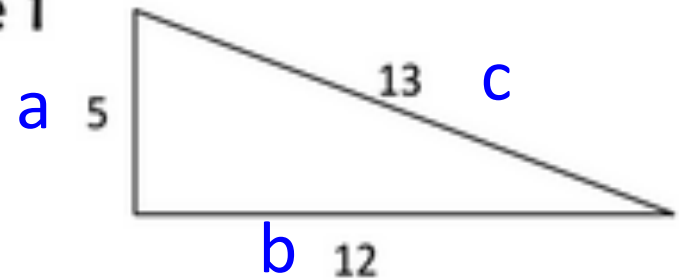
$$25 + 144 = 169$$

$$169$$

$$= 169$$



Example 1



Yes, it is a right triangle

How do you use Pythagorean Theorem to find the hypotenuse?

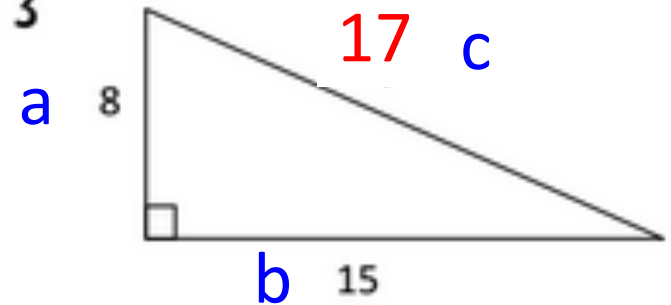


Solve for the length of the hypotenuse

1) Label each of the sides

2) Plug into the Pythagorean Theorem & Solve

Example 3



$$(8)^2 + (15)^2 = c^2$$

$$64 + 225 = c^2$$

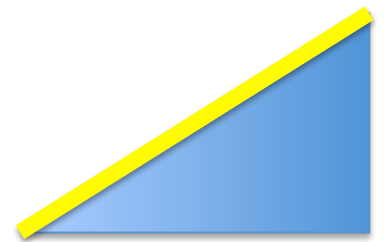
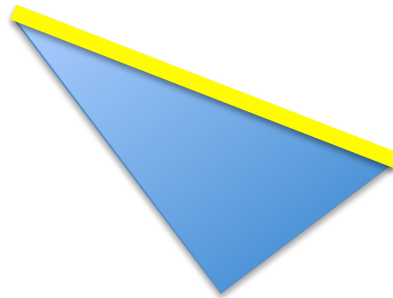
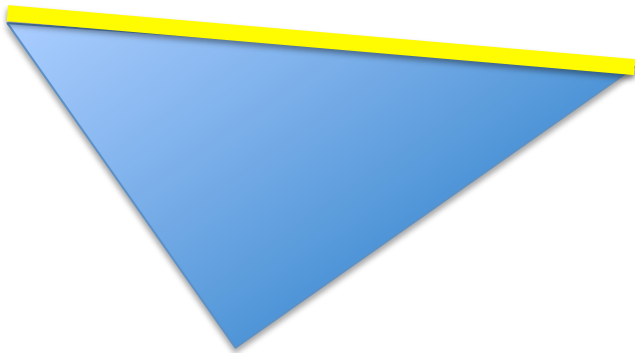
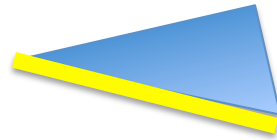
$$\sqrt{289} = \sqrt{c^2}$$

$$\textcircled{17}, -17$$

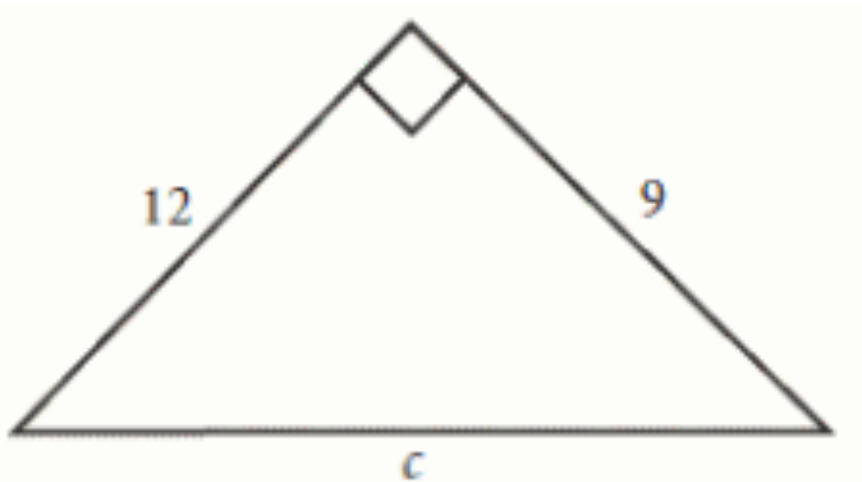
$$= c$$

CANNOT have a negative length

Where is the hypotenuse?



Another Example



$$a^2 + b^2 = c^2$$

$$12^2 + 9^2 = c^2$$

$$144 + 81 = c^2$$

$$225 = c^2$$

$$\sqrt{225} = \sqrt{c^2}$$

$$15 = c$$

**Don't be
fooled
Just cause it's
rotated**

Fun Application

