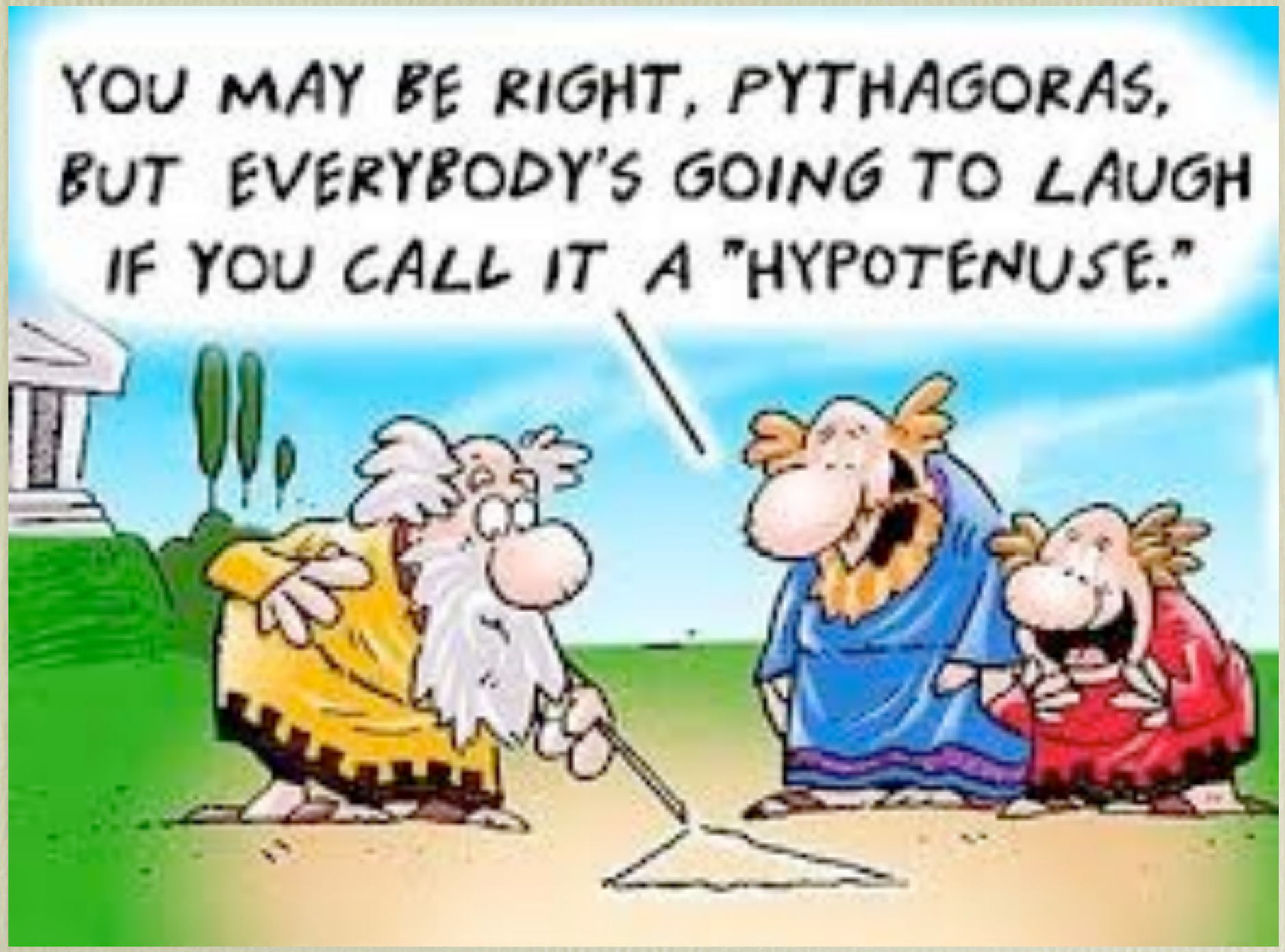
I can use the Pythagorean Theorem to solve problems.

What do all of these triangles have in common?


YOU MAY BE RIGHT, PYTHAGORAS,
BUT EVERYBODY'S GOING TO LAUGH
IF YOU CALL IT A "HYPOTENUSE."

PARTS OF A RIGHT TRIANGLE

hypotenuse

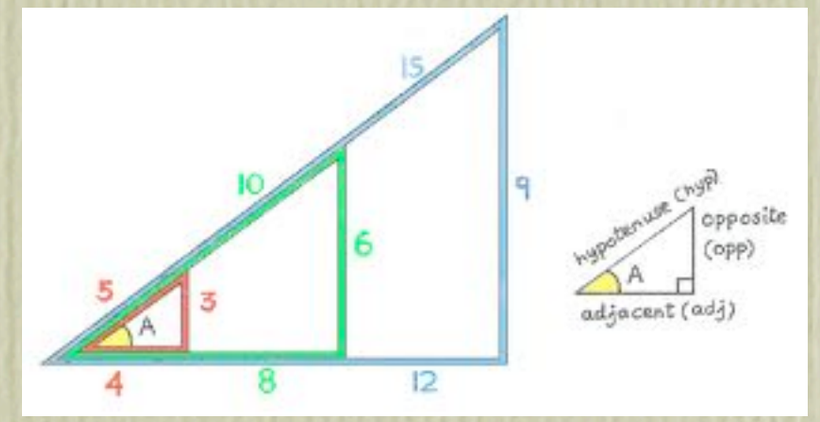
- leg

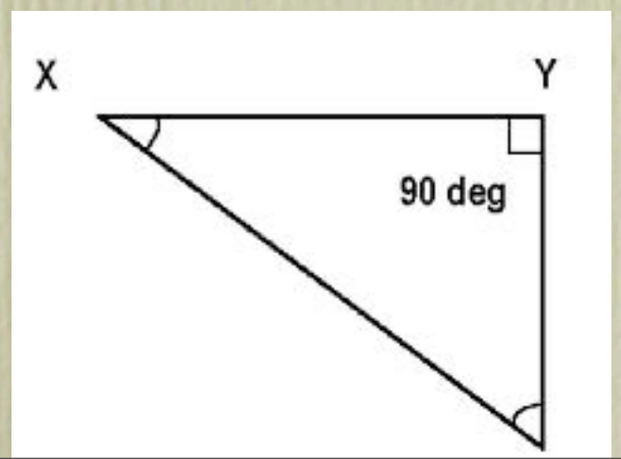
leg

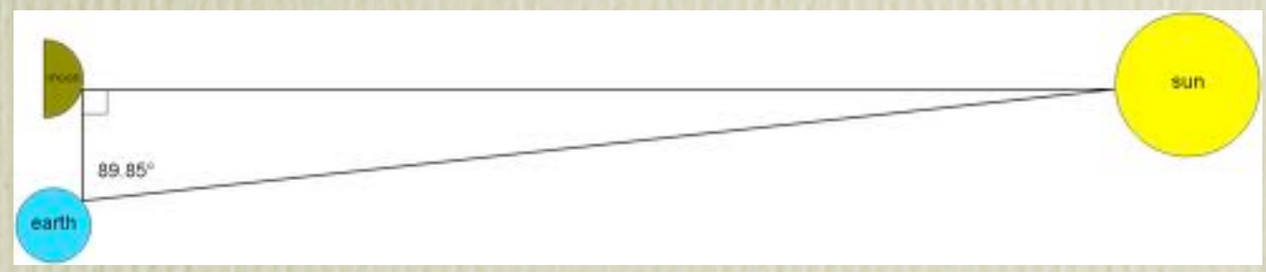
things to remember

- where is the hypotenuse?
- ACROSS FROM THE RIGHT ANGLE
- what two parts make the right angle?
- THE LEGS!!
- WHICH SIDE IS THE LONGEST?
- THE HYPOTENUSE!!

WHERE IS THE HYPOTENUSE IN THE FOLLOWING ▲'S??








Great Scott!
My math teacher was *right*!
I did *need to know* the
Pythagorean theorem!
Curses! Now poor Timmy
is going to *die*
because of my foolish
disrespect for *geometry*!
Linda Causey 2003

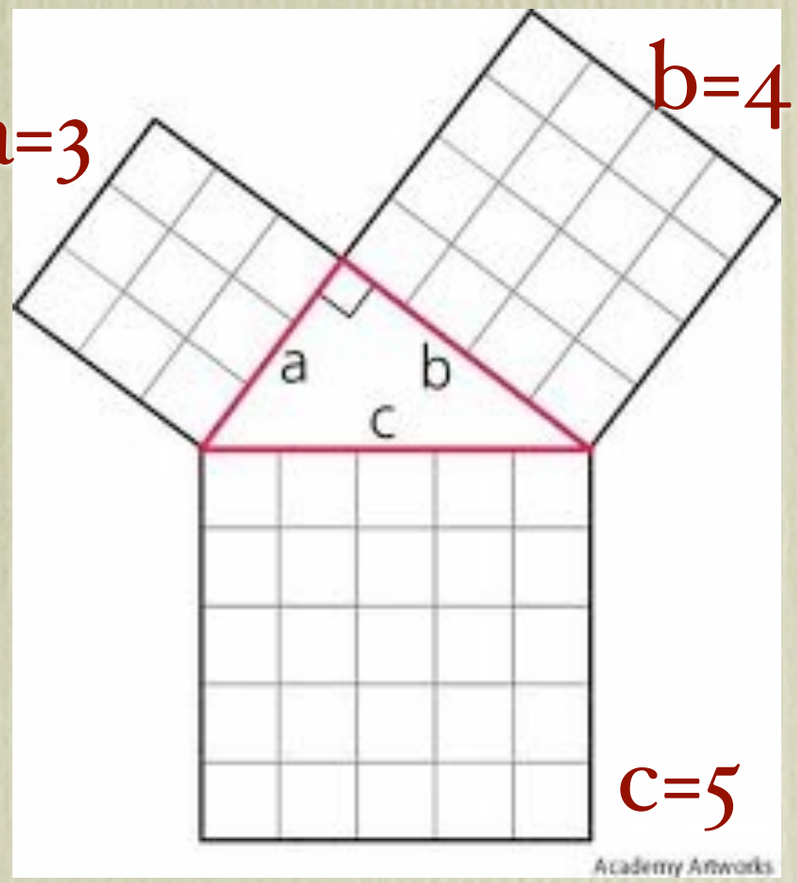
The Pythagorean Theorem

This is going to be fun!!!!

- the square of the hypotenuse is equal to the sum of the squares of the other two sides. ...

FORMULA

- $a^2 + b^2 = c^2$
- $3^2 + 4^2 = 5^2$
- 9 + 16 = 25
- THIS IS A PERFECT PYTHAGOREAN !!



SQUARE ROOTS

- ONCE YOU FIGURE OUT WHAT a + b equals:

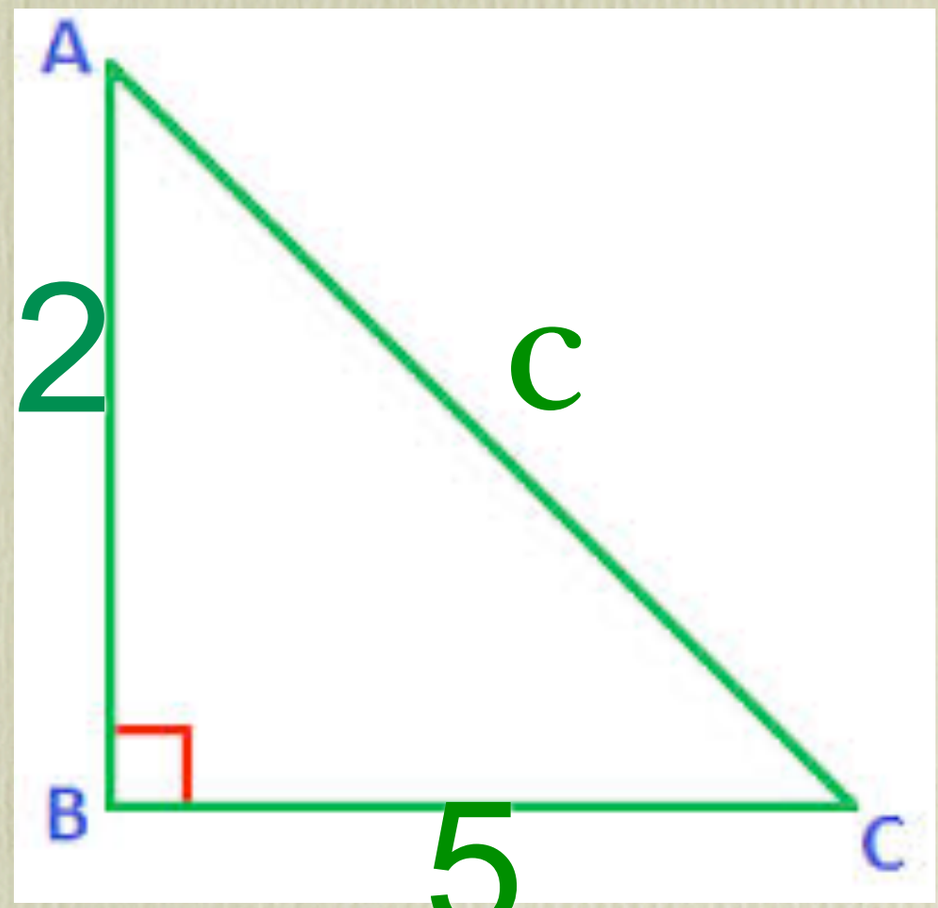
- you need to find the square root of c.

- $9 + 16 = 25\sqrt{}$

- $\sqrt{25} = 5$

Let's Try One

- $a^2 + b^2 = c^2$
- $12^2 + 5^2 = c^2$
- $144 + 25 = 169$
- $\sqrt{169} = 13$



Example 1

If a right triangle has sides measuring 6 and 8 centimeters, find the length of the hypotenuse?

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

$6^2 + 8^2 = c^2$

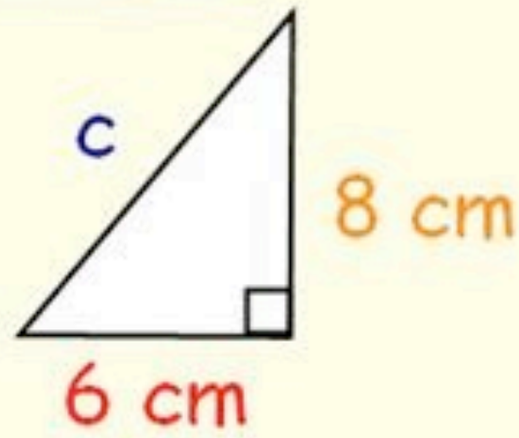
$36 + 64 = c^2$

$100 = c^2$

$\sqrt{100} = \sqrt{c^2}$

$10 = c$

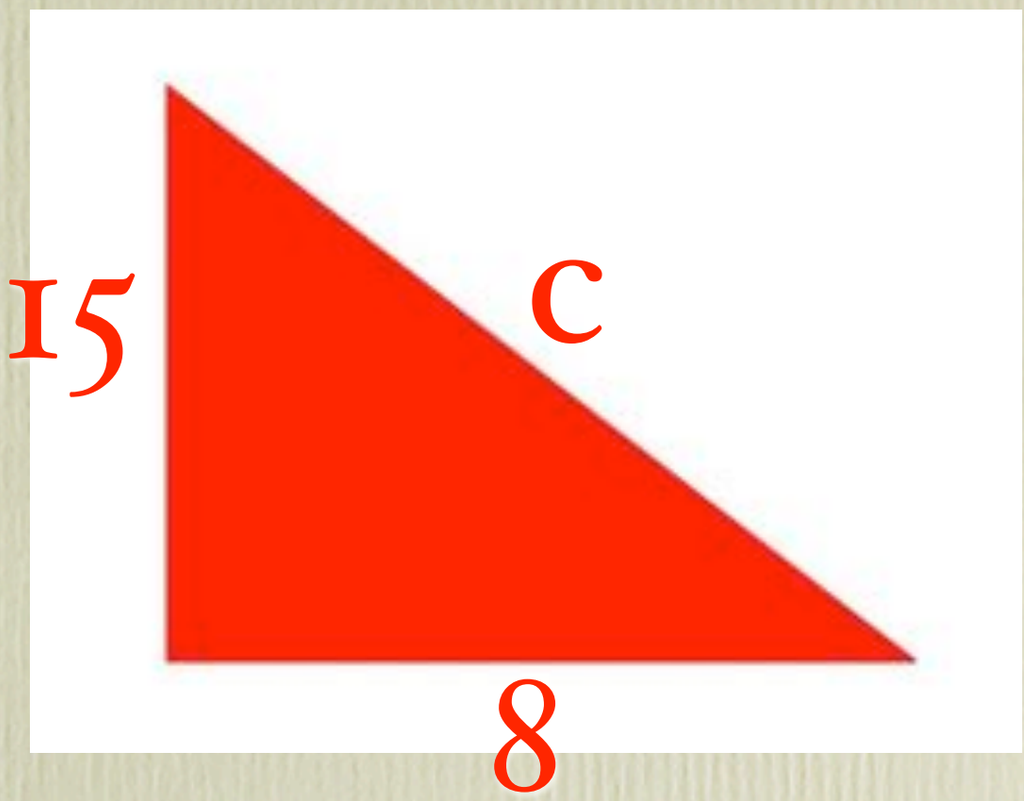
The hypotenuse is 10 cm long.



Geometry EETT Grant

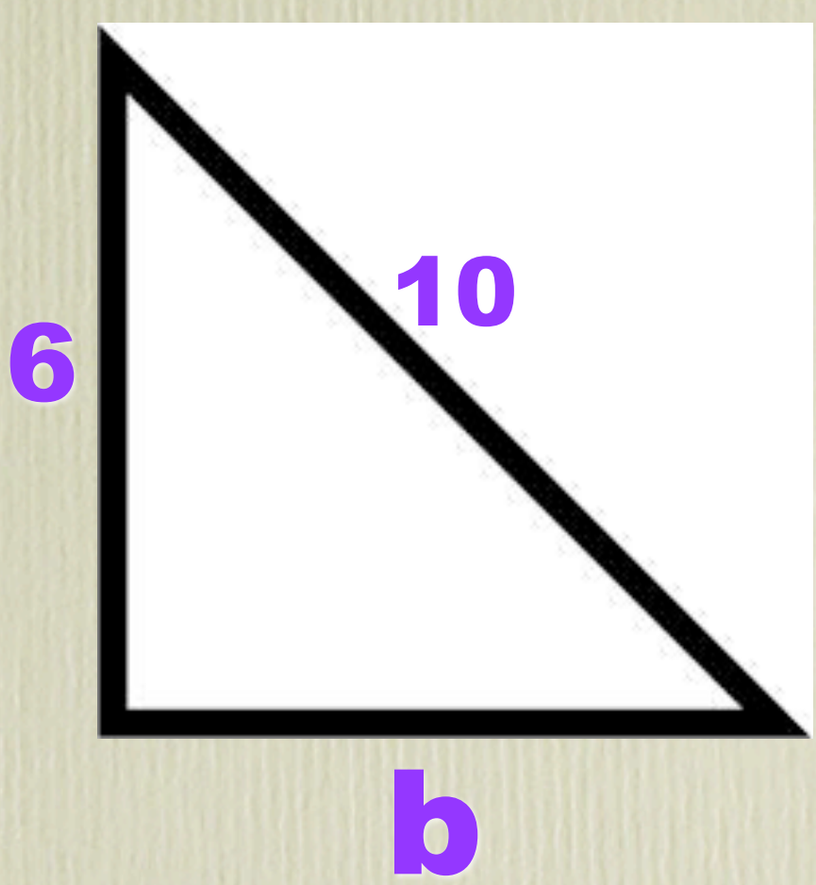
AND ANOTHER

- $a^2 + b^2 = c^2$
- $15^2 + 8^2 = c^2$
- $225 + 64 = 289$
- $\sqrt{17}$



UH-OH!

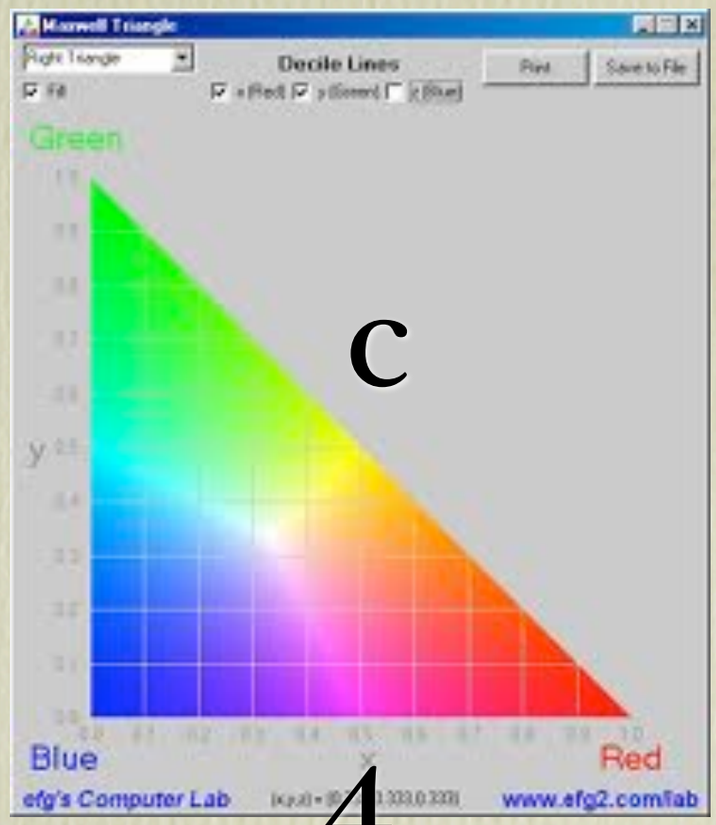
- $a^2 + b^2 = c^2$
- $6^2 + b^2 = 10^2$
- $36^2 + b^2 = 100^2$
- isolate your b^2
- $b^2 = 64$ or $(b)(b)$
- $\sqrt{8}$



on your whiteboard....

- $a^2 + b^2 = c^2$
- $3^2 + 4^2 = c^2$
- $9 + 16 = c^2$
- find the square root!

3

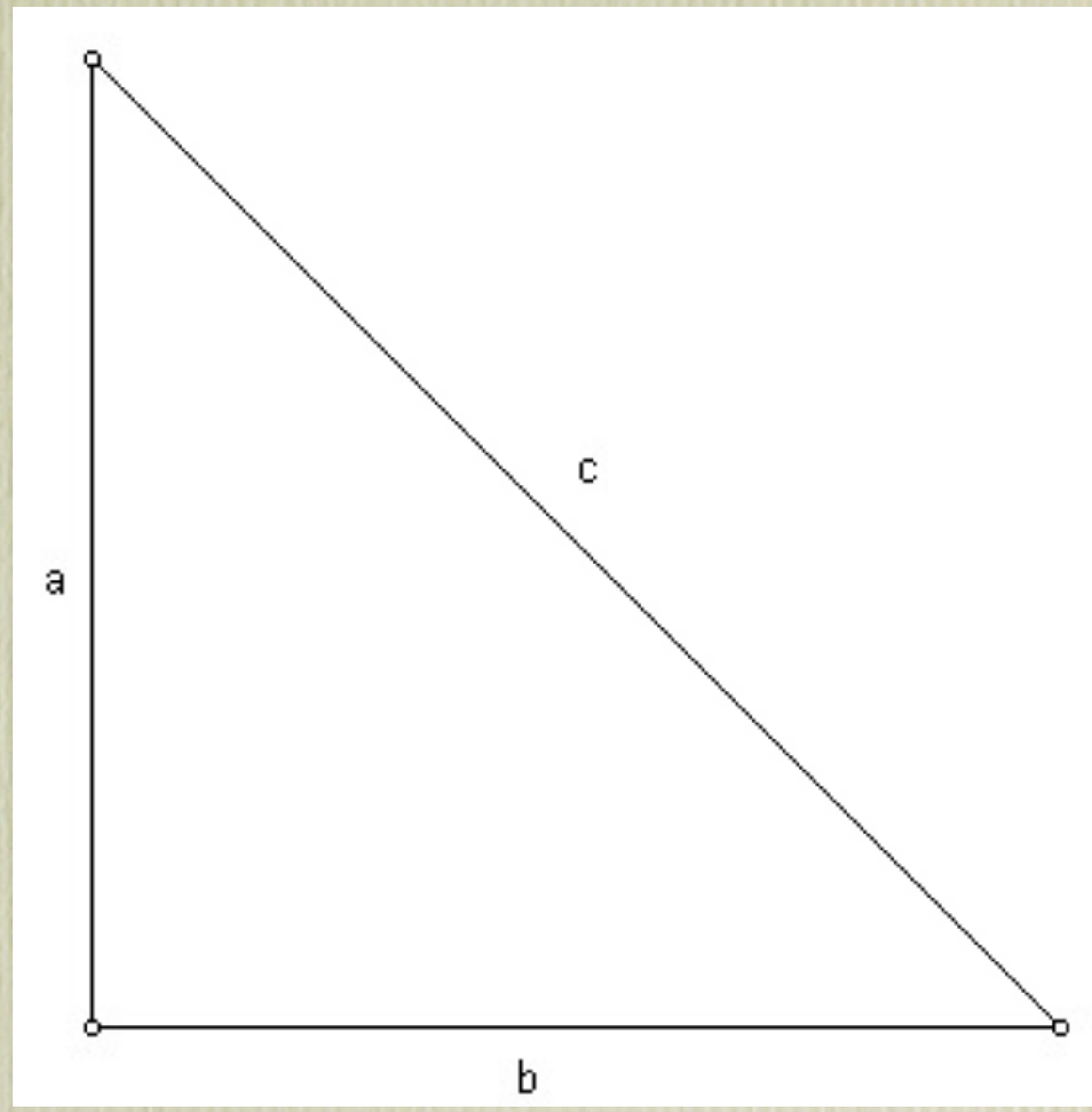


c

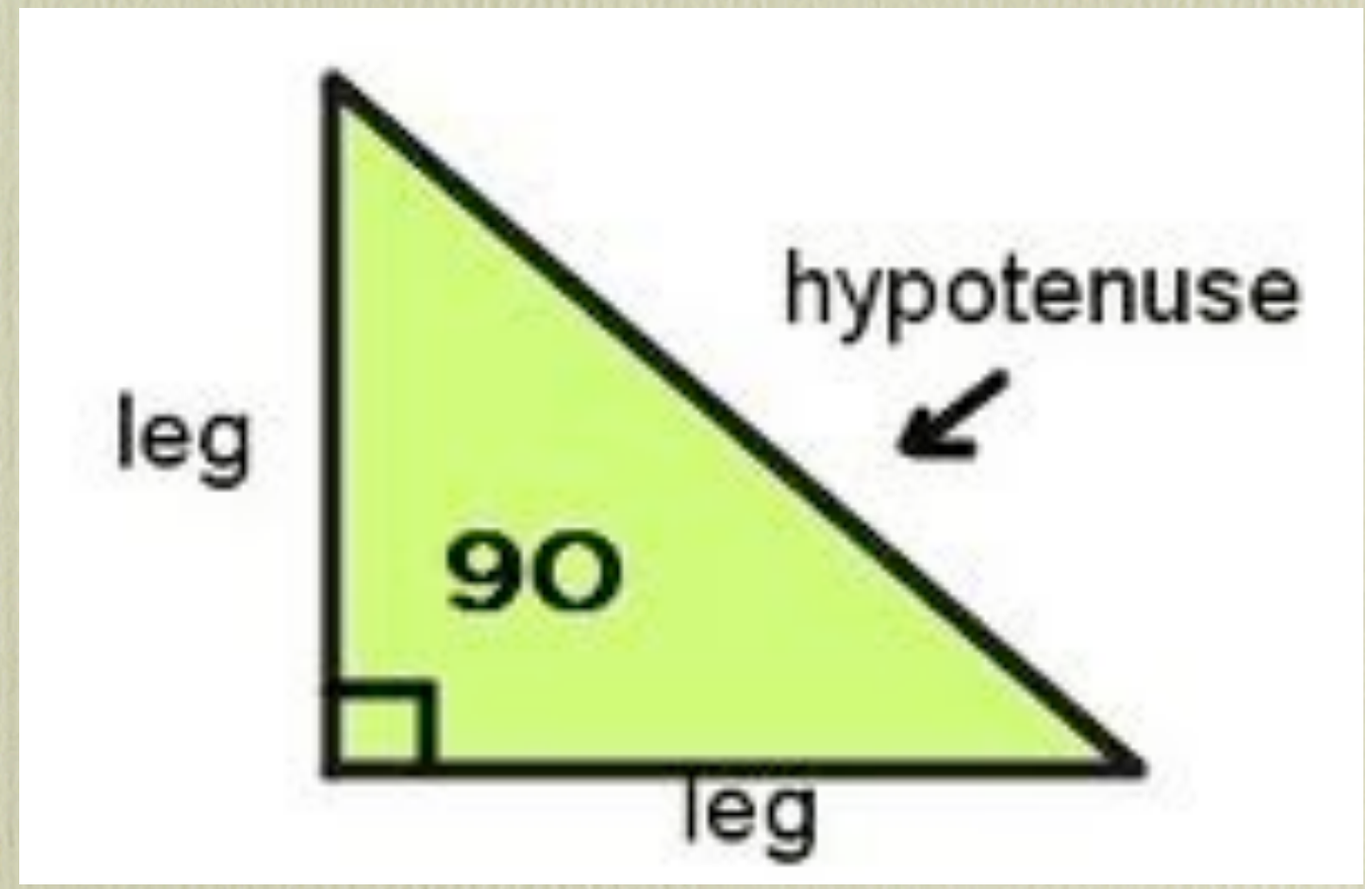
4

Find the hypotenuse

- A=25
- B=36
- C=??????



If one leg is 6 and the other is 8, what is the hypotenuse?



one final example on your white board....

- write your formula
- fill in the numbers for the variables
- isolate your variable
- find the square root