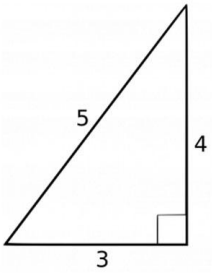
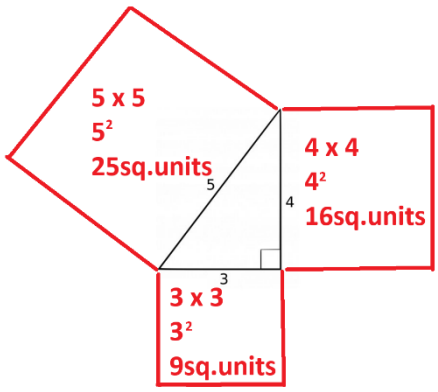
PYTHAGORAS

Finding Sides Without Knowing Angles

In construction, using ropes, tapemeasures, or whatever, you can easily create a RIGHT TRIANGLE using a 3 4 5 triangle.



Mathematically, this works out. There is a relationship between all three sides:



$4^2 + 3^2 = 5^2$ 16 + 9 = 25

We'll label the sides ADJACENT to the 90° (square) corner as **a** and **b** (doesn't matter which) and the Hypotenuse will be **c** (always).

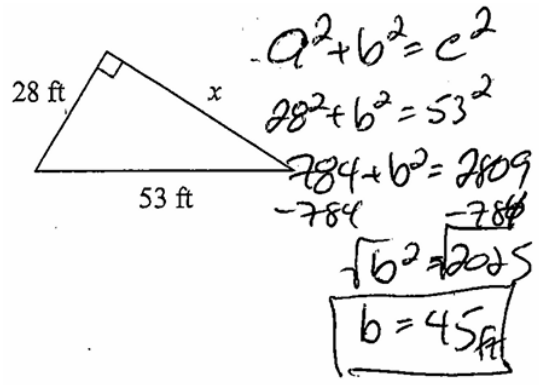
In the image above we proved that: $a^2 + b^2 = c^2$

This is called the "Pythagorean Theorum," and ONLY works on RIGHT ANGLE TRIANGLES.

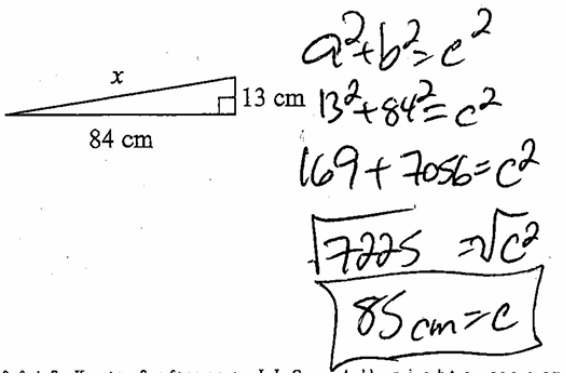
(In this math course, you will ONLY get RIGHT ANGLE TRIANGLES)

If you know TWO side lengths of the triangle, you can easily find the third side length.

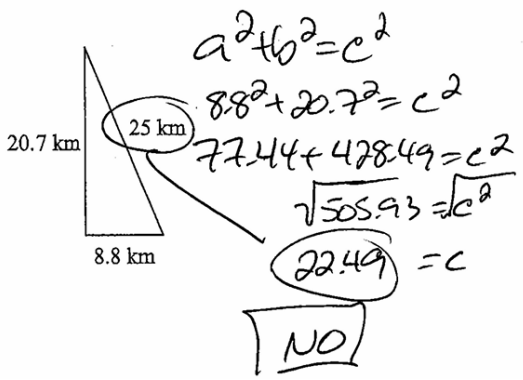
EX1: FIND the missing side



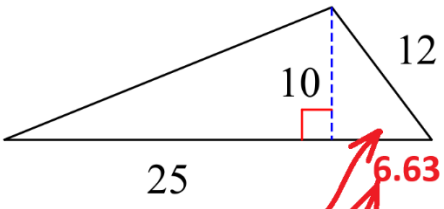
EX2: FIND the missing side



EX3: IS this a right angle triangle?



EX4: FIND the AREA



6.63

START HERE

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

$10^2 + b^2 = 122$

$100 + b^2 = 144$

$-100 \quad -100$

$\sqrt{b^2} = \sqrt{44}$

$b = 6.63$

$A = \frac{bh}{2}$

$A = \frac{(25+6.63)(10)}{2}$

$A = \frac{(31.63)(10)}{2}$

$A = \frac{316.3}{2}$

$A = 158.2$