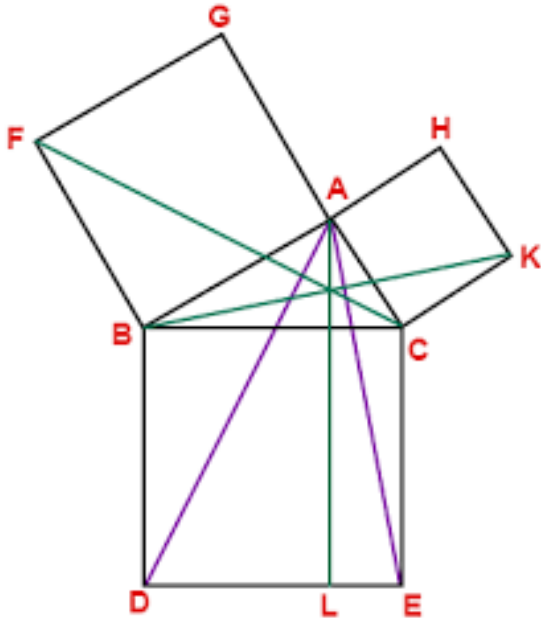


# Pythagoras Made Easy



Help! I almost flunked  
Geometry because I couldn't  
understand the proof of the  
Pythagorean Theorem.

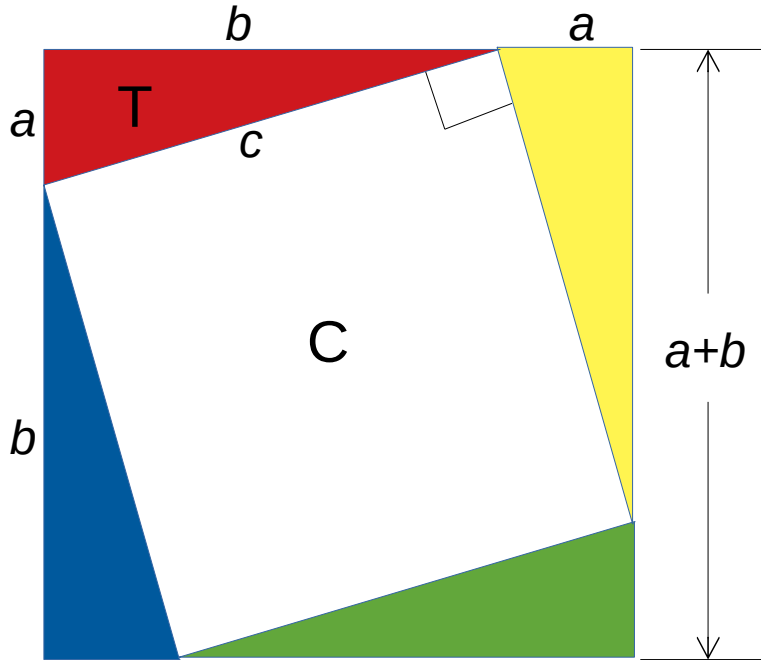
# Why? Euclid's Proof.



- Requires too many steps.\*
- Is unnecessarily complex and difficult to remember.
- Relies on complicated constructions, triangles in parallelograms, side-angle-side, etc...
- The theorem can be proven in just three simple, easy to remember steps.

\*<https://www.cut-the-knot.org/pythagoras/Proof1.shtml>

# Step 1

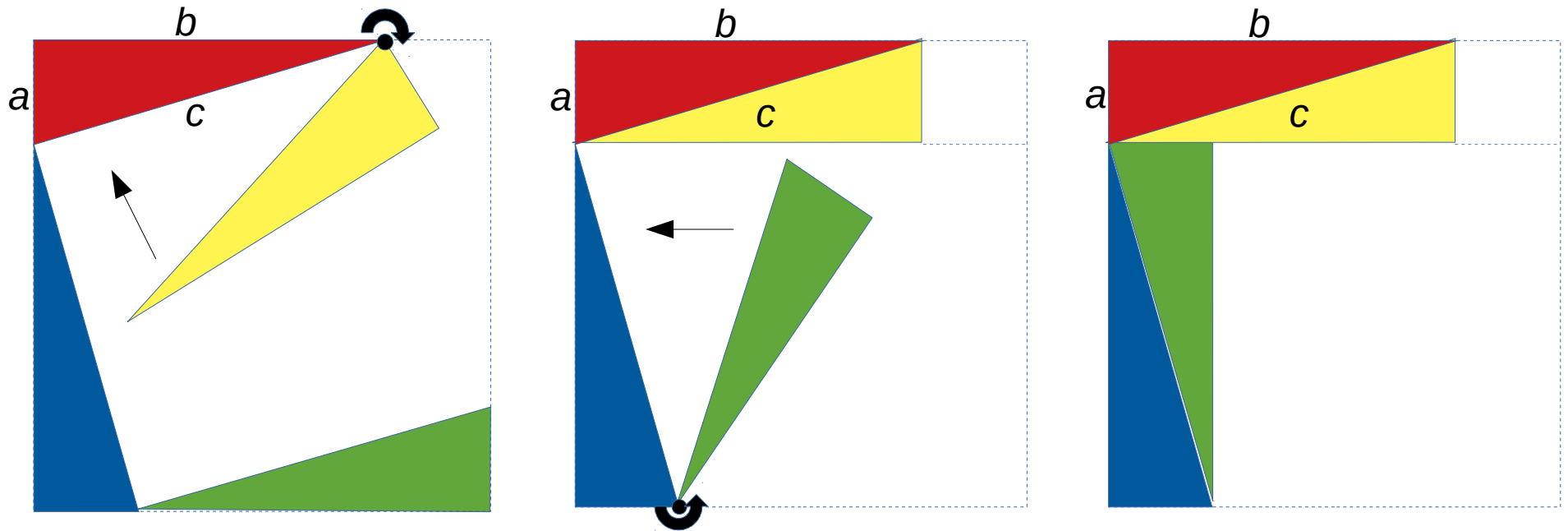


**Big Square 1**

- Layout four, congruent right triangles in a big square as shown to the left.
- Let  $a$  and  $b$  be the legs and  $c$  be the hypotenuse.
- Let  $T$  be the area of each triangle.  
( $T = \frac{1}{2} ab$ )
- Let  $C$  be the square on the hypotenuse.
- Note that the area of Big Square 1 is the sum of the four triangles plus square  $C$ . That is,

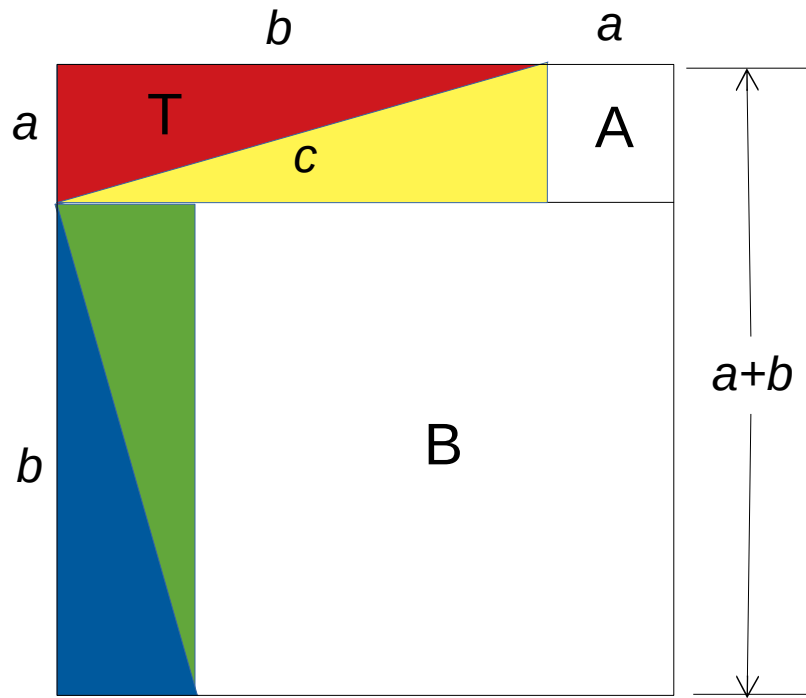
$$\text{Area}_{\text{Big Square 1}} = 4T + C$$

# Mezzanine Step



Rotate the Yellow and Green triangles  
as shown above.

# Step 2



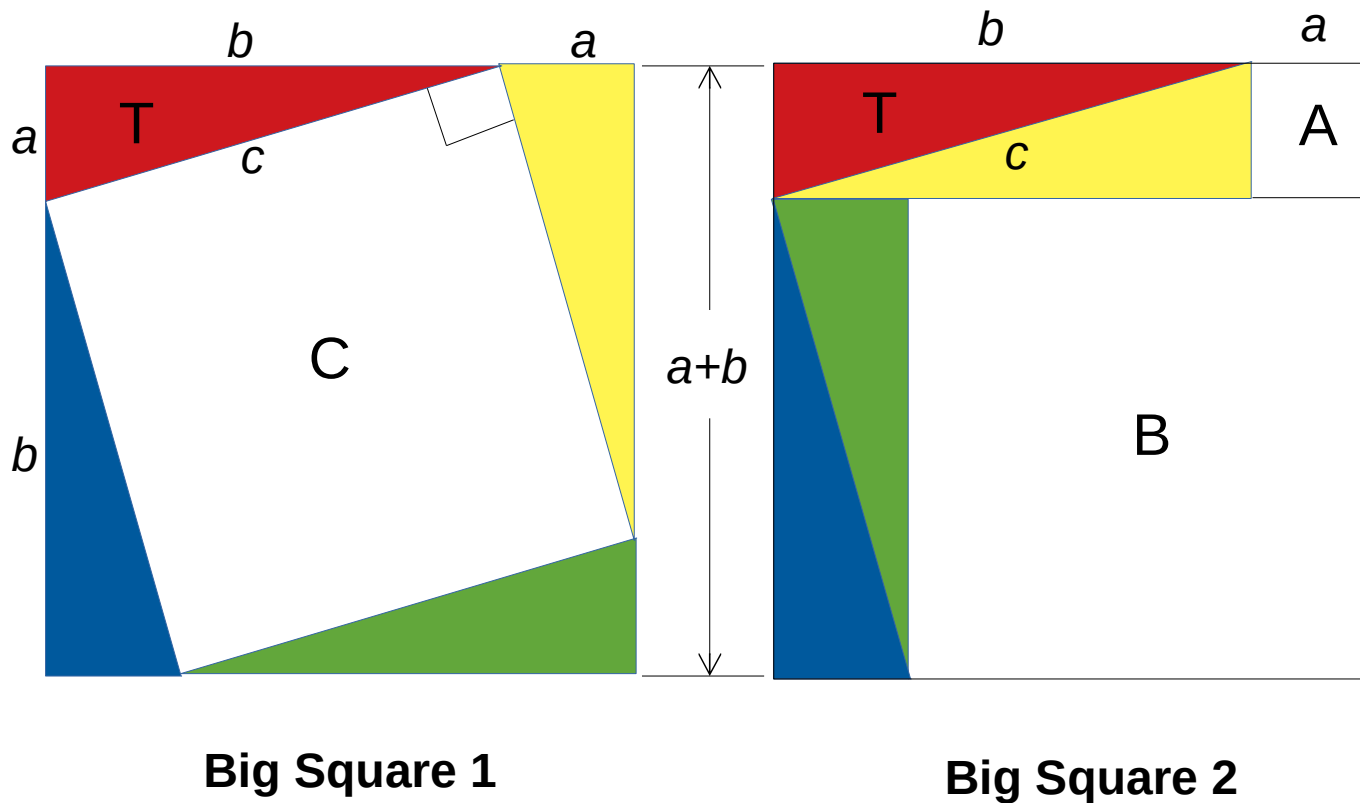
**Big Square 2**

- Let  $A$  be the square on side  $a$ .
- Let  $B$  be the square on side  $b$ .
- Note that the area of Big Square 2 is the sum of the four triangles plus square  $A$  plus square  $B$ . That is

$$\text{Area}_{\text{Big Square 2}} = 4T + A + B$$

# Step 3

- Equate the two big squares.



# Conclusion

- Note that Big Square 1 is the same size as Big Square 2. (Side equals  $a + b$ ). Therefore

$$\text{Area}_{\text{Big Square 2}} = \text{Area}_{\text{Big Square 1}}$$

- Substituting from steps 1 and 2

$$4T + A + B = 4T + C$$

- Subtract out the four triangles from each side of the equation

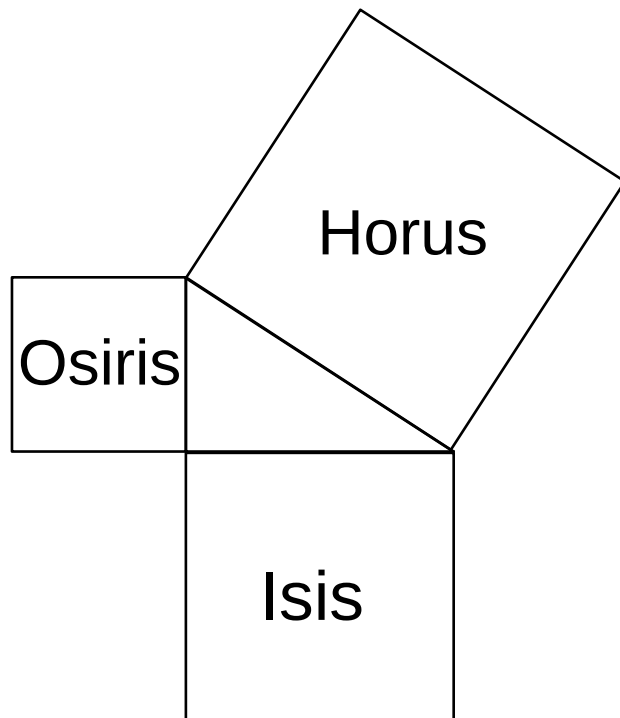
$$A + B = C$$

which expressed algebraically is

$$a^2 + b^2 = c^2 \quad \text{QED}$$

# Why the Euclid Proof?

Euclid's Construction:



- Symbol used by ancient occult mystery schools
  - ♦ Base represents Isis – the subservient wife lying on her back.
  - ♦ Height represents Osiris – the upright man standing over his wife.
  - ♦ Hypotenuse represents Horus – the magical (or divine) child resulting from the union of Isis and Osiris.
- Often appears in pendants worn by mystery school initiates, such as Freemasonry.\*
- Was Euclid an initiate of the ancient occult mystery schools?

\* Christian J Pinto, *Riddles in Stone*, 2007



# On Github

This presentation available on Github  
at

<https://github.com/fractalxaos/barcamp/>