Proofs Of The Pythagorean Theorem?

Here are three attempts to prove the Pythagorean theorem.

Look carefully at each attempt. Which is the best 'proof' ?

Explain your reasoning as fully as possible.

Attempt 1:

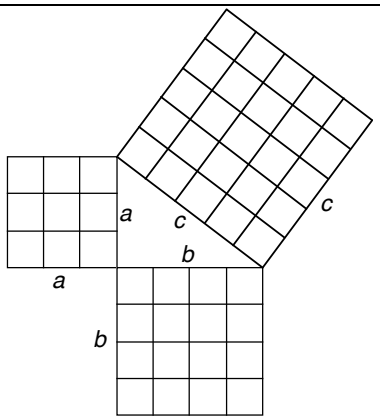
Suppose a right triangle has sides of length a, b and c

Draw squares on the three sides as shown.

Divide these squares into smaller squares.

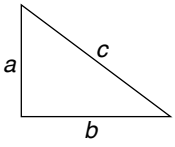
You can see that the number of squares on the two shorter sides add up to make the number of squares on the longest side.

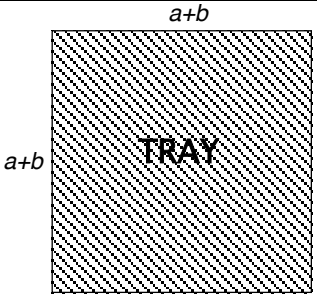
So: $a^2+b^2=c^2$



Attempt 2

Suppose that you start with **four** right triangles with sides of length a, b and c and a square tray with sides of length $a+b$.





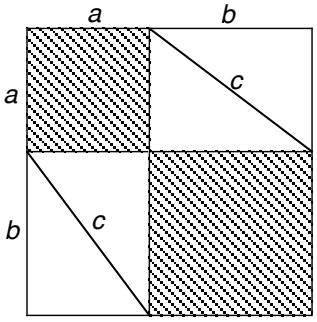
You can arrange the triangles into the tray in two different ways as shown here.

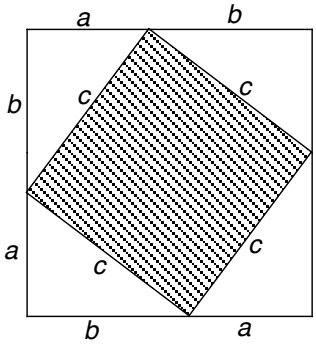
In the first way, you leave two square holes. These have a combined area of $a^2 + b^2$.

In the second way you leave one large square hole. This has an area of c^2.

Since these areas are equal

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



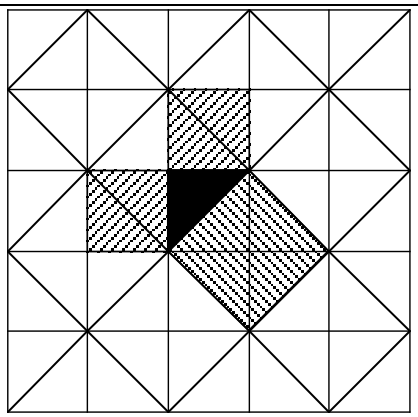


Attempt 3:

The proof of the Pythagorean theorem is clear from this diagram.

The squares on the two shorter sides of the black triangle are each made from two congruent triangles.

These fit together to make the square on the longest side- the hypotenuse.



The best proof is attempt number _____

This is because

_____

_____

_____

_____

_____

My criticisms of the others are

_____

_____

_____

_____

_____