Proof of theorem of Pythagoras

So to proof for the rectangular lines a and b that the following relationship is always true: $c^2 = a^2 + b^2$



Proof:

• The area of the total square is c^2 .

- This total area consists of 4 equal triangles and 1 remaining square.
- 2 equal triangles form a square. So the area of a triangle is: 1/2×ab.
- The area of the remaing square is: $(b a)(b a) = a^2 2ab + b^2$

So the total area is equal to 4 times the triangle and 1 remaining square in the middle.

$$c^{2} = 4 \times \frac{1}{2}ab + a^{2} - 2ab + b^{2} = a^{2} + b^{2}$$

Thus:
 $c^{2} = a^{2} + b^{2}$
g.e.d.