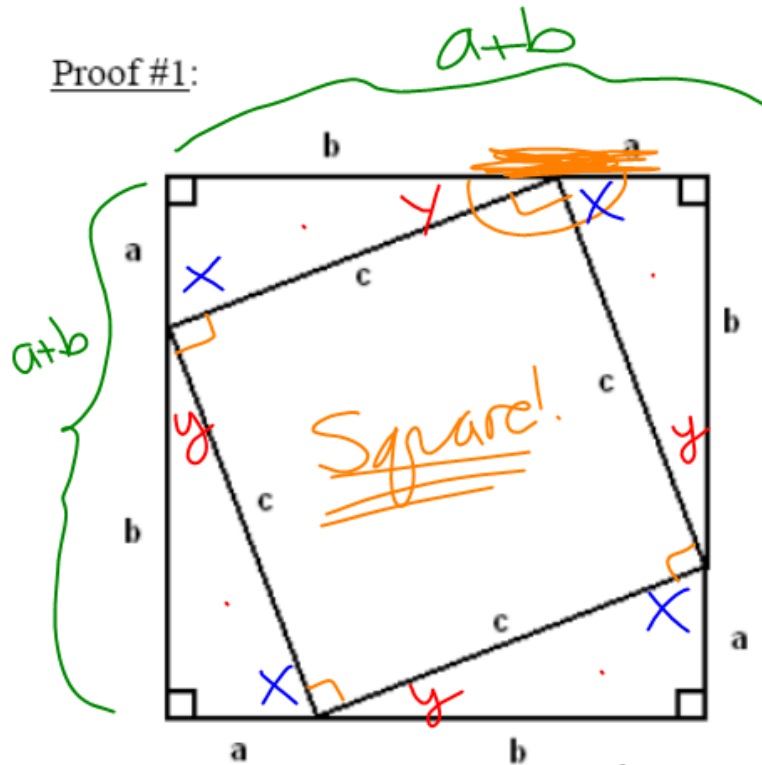


Proof #1:



$$\triangle: \begin{aligned} x+y+90 &= 180 \\ x+y &= 90 \end{aligned}$$

$$\text{Line} = 180 - 90 = 90$$

$$A_{\triangle s} = 4 \left[ \frac{a \cdot b}{2} \right]$$

$$A_{\triangle s} = 2ab$$

$$A_{sq} = c \cdot c$$

$$A_{sq} = c^2$$

$$A_{\text{whole}} = (a+b)(a+b)$$

$$A_{\text{whole}} = a^2 + ab + ab + b^2$$

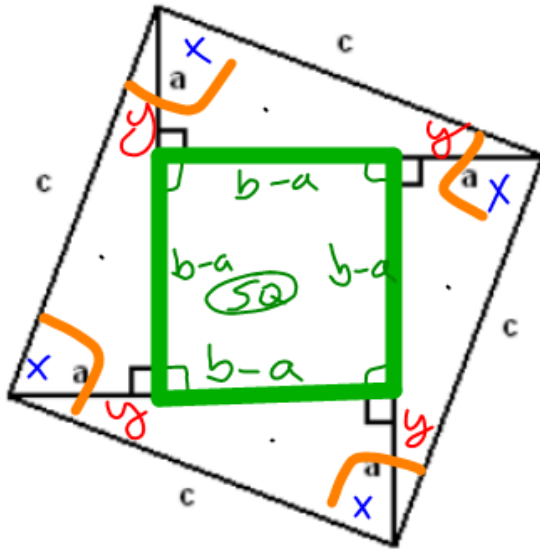
$$A_{\text{whole}} = a^2 + 2ab + b^2$$

$$A_{\text{whole}} = A_{\triangle s} + A_{sq}$$

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

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

Proof #2:



$$\triangle : x + y + 90 = 180$$

$$x + y = 90$$

Overall: Square

$$A_{\triangle s} = 4 \left[ \frac{a \cdot b}{2} \right]$$

$$A_{\triangle s} = 2ab$$

$$A_{sq} = (b-a)(b-a)$$

$$= b^2 - ab - ab + a^2$$

$$A_{sq} = a^2 - 2ab + b^2$$

$$A_{whole} = c^2$$

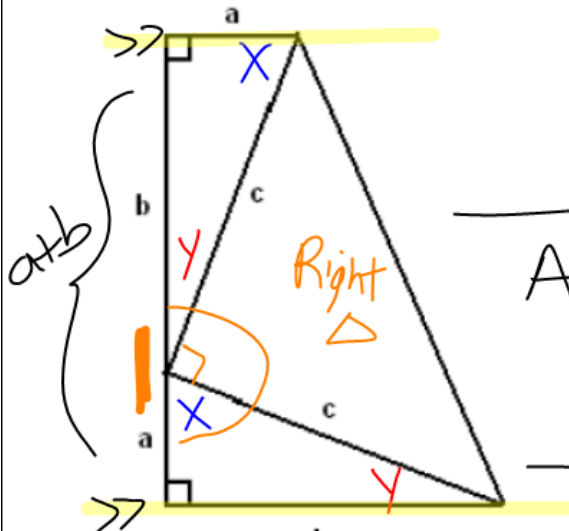
$$A_{whole} = A_{\triangle s} + A_{sq}$$

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

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

$$a^2 + b^2 = c^2 \quad \checkmark$$

Proof #3:



SSIIAT  
 ↳ Whole figure:  
 Trapezoid

$$\triangle: \begin{cases} x+y+90=180 \\ x+y=90 \end{cases}$$

Line:  $180 - 90 = 90$

$$A_{\triangle s} = 2 \left[ \frac{a \cdot b}{2} \right]$$

$$A_{\triangle s} = ab$$

$$A_{RT} = \frac{c \cdot c}{2}$$

$$A_{RT} = \frac{c^2}{2}$$

$$A_{\text{whole}} = \frac{1}{2} (a+b)(a+b)$$

$$= \frac{1}{2} [a^2 + ab + ab + b^2]$$

$$A_{\text{whole}} = \frac{1}{2} [a^2 + 2ab + b^2]$$

$$A_{\text{whole}} = A_{\triangle s} + A_{RT}$$

$$\frac{1}{2} [a^2 + 2ab + b^2] = \left( ab + \frac{c^2}{2} \right) 2$$

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

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