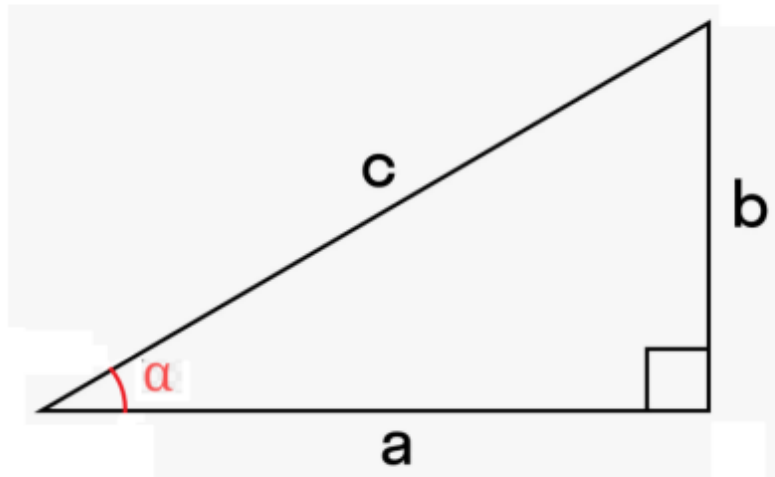


Proof of the Pythagorean theorem through the Basic Trigonometric Identity

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I. the main decision

$$\left. \begin{array}{l} 1. \sin \alpha = \frac{b}{c} \Rightarrow \sin^2 \alpha = \frac{b^2}{c^2} \\ 2. \cos \alpha = \frac{a}{c} \Rightarrow \cos^2 \alpha = \frac{a^2}{c^2} \end{array} \right\} \Rightarrow$$

$$3. \Rightarrow \sin^2 \alpha + \cos^2 \alpha = \frac{b^2}{c^2} + \frac{a^2}{c^2} = \frac{b^2 + a^2}{c^2};$$

$$\Rightarrow 1 = \frac{b^2 + a^2}{c^2}$$

$$4. \Rightarrow \boxed{a^2 + b^2 = c^2}$$

II. auxiliary solution

$$1. 1 = \cos^2 \alpha + \sin^2 \alpha = \frac{a^2}{c^2} + \frac{b^2}{c^2} = \frac{a^2 + b^2}{c^2}$$

$$2. \Rightarrow \boxed{a^2 + b^2 = c^2}$$

Pythagoras' theorem is proven