Pythagoras' theorem proof

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Consider a triangle with side lengths a, b and c.

$$\text{Area} = \tfrac{1}{2}\,ab$$

Arranging four triangles

$$\text{Area (4 triangles)} = 4 \times \tfrac{1}{2}\,ab$$
$$= 2ab$$

$$\text{A(blue)} = \text{A(total)} - \text{A(red)}$$
$$c^2 = (a+b)^2 - 2ab$$
$$= a^2 + 2ab + b^2 - 2ab$$
$$\therefore\ c^2 = a^2 + b^2$$