

# Proofs without words I

Exercises in METAPOST

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# Geometry and Algebra

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## The Pythagorean theorem I



— adapted from the *Chou pei san ching*

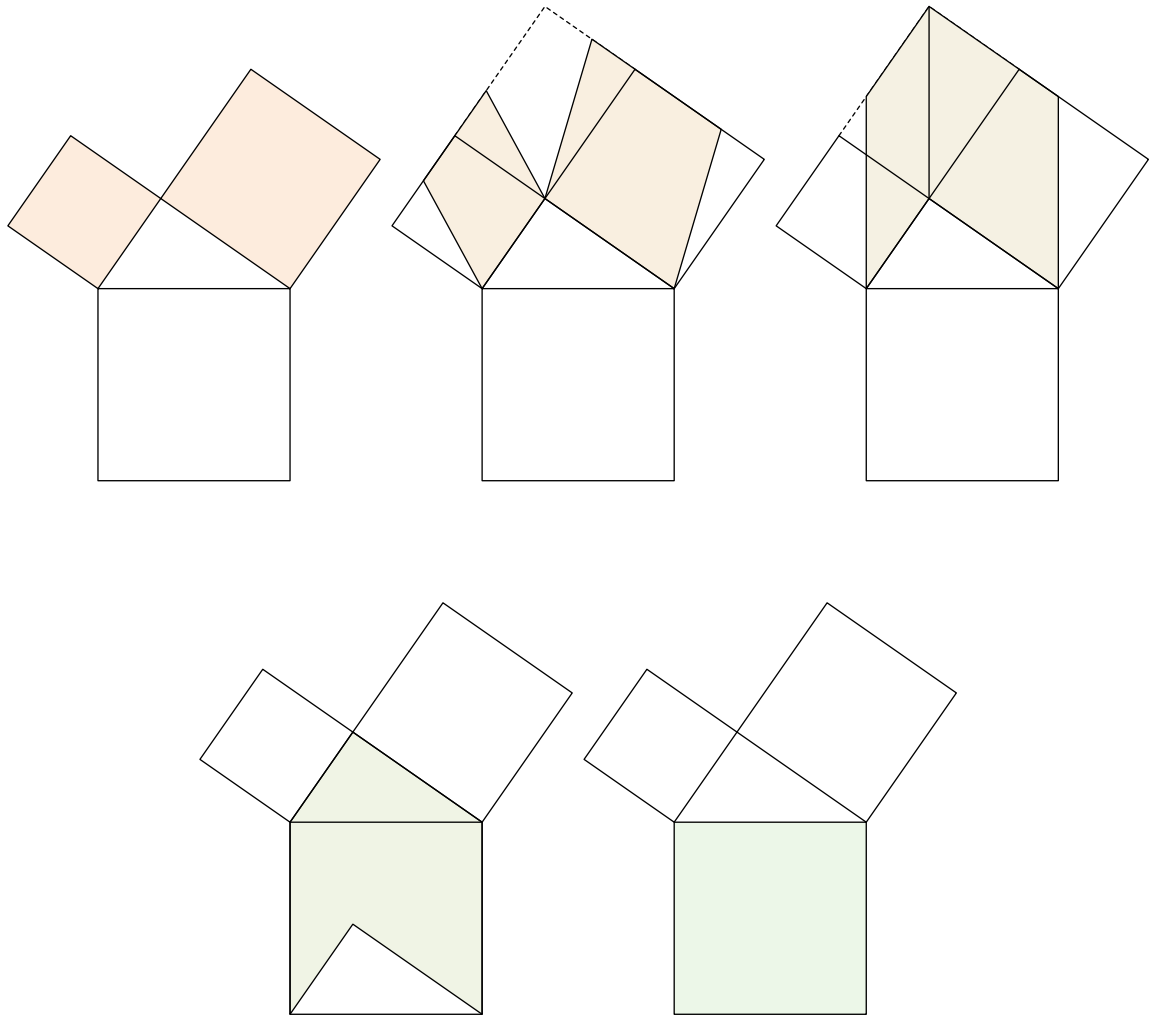
## The Pythagorean theorem II



*Behold!*

— Bhāskara (12th century)

## The Pythagorean theorem III



— based on Euclid's proof

## The Pythagorean theorem IV



— H. E. Dudeney (1917)

## The Pythagorean theorem V



$$A = 2 \cdot \frac{1}{2}ab + \frac{1}{2}c^2 = \frac{1}{2}(a+b)^2$$

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

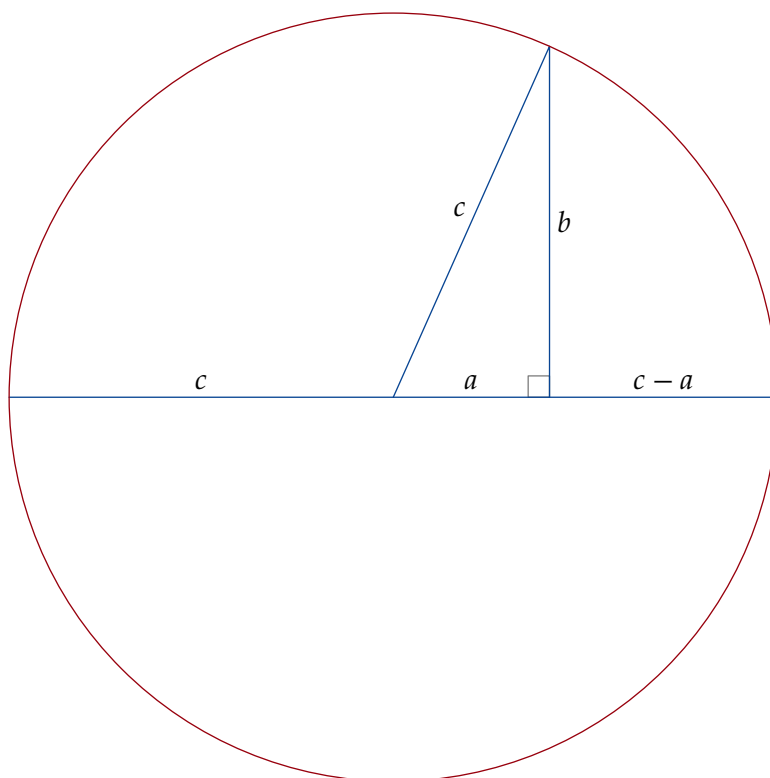
— James A. Garfield (1876)



## The Pythagorean theorem VI

$$\frac{c+a}{b} = \frac{b}{c-a}$$

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



— Michael Hardy