

Pythagorean Theorem and Its Converse (C)

Suppose that $\triangle ABC$ is a triangle and $\angle ABC$ is a right angle. Then the side AC is called the hypotenuse of the triangle, and

$$\|AC\|^2 = \|AB\|^2 + \|BC\|^2,$$

where $\|AC\|$, $\|AB\|$ and $\|BC\|$ denote the lengths of the sides AC , AB and BC respectively.

The preceding is known as Pythagorus's Theorem.

A converse to the theorem is the following. Suppose that $\triangle ABC$ is a triangle, and

$$\|AC\|^2 = \|AB\|^2 + \|BC\|^2.$$

Then $\angle ABC$ is a right angle.