Pythagoras' Theorem

The *Pythagorean theorem*, or *Pythagoras' Theorem*, is a theorem attributed to Pythagoras, a Greek mathematician who lived about 569–475 BCE. The theorem concerns the sides of a right-angled triangle. He proved that the area of the square drawn on the hypotenuse (the longest side) is equal to the sum of the areas of the squares drawn on the other two sides.

Algebraically, if we have a triangle with sides a, b and c, where c is the hypotenuse, then

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

The converse is also true (and is also attributed to Pythagoras): if the side lengths of a triangle are a, b and c with $a^2 + b^2 = c^2$, then the triangle is right-angled, with the side length c being the hypotenuse.

Over 350 different proofs of this theorem have been collected over the years.

The cosine rule is a generalisation of Pythagoras' Theorem.

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