Pythagorean Theorem

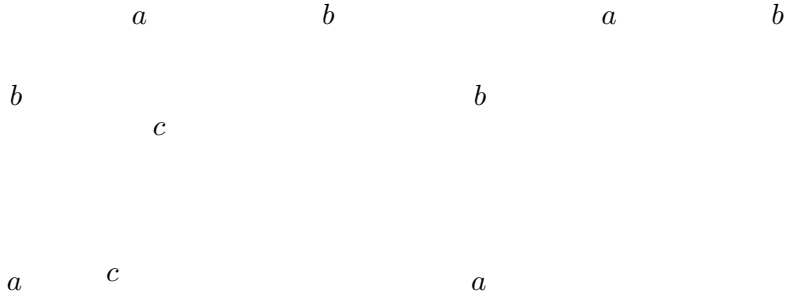
lxma@sotalia.de

August 5, 2015

The Pythagorean theorem states that in a right-angled triangle where c is the the hypotenuse and a and b are the two other sides following equation holds:

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

The following images illustrates why Pythagoras' theorem holds:



Both squares have the same dimension $a + b$ and therefore have the same area. Both squares contain four triangles with sides a, b, c (blue). The rest of the left square is occupied by a square with area c^2; the rest of the right square is occupied with two squares with area a^2 and b^2.

Therefore c^2 in the left square and a^2 and b^2 in the right square occupy the same area which proves the theorem.