Theorem 9: (Pythagorean Theorem)

In a right triangle the sum of the squares of the legs equals the square of the hypotenuse.

**Note:** This is a statement about area:
Let $\triangle ABC$ have $\angle BCA$ as a right angle. Let $a = AC$, $b = BC$, and $c = AB$. We need to show $a^2 + b^2 = c^2$. Let $S = \text{area}(\triangle ABC)$. 
Consider a square of side $a + b$, and subdivide the square in two ways:

On the left we see the area of the square is $a^2 + b^2 + 4S$, while on the right we have the area as $c^2 + 4S$. Thus, $a^2 + b^2 = c^2$. This is the claim. □