Pythagorean Proof

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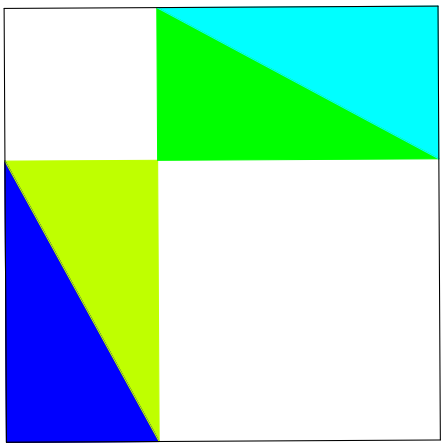
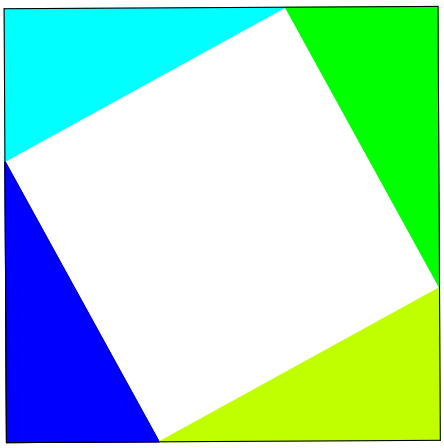
Theorem 0.1. *For a right triangle with side lengths a and b, and hypotenuse length c, $c^2 = a^2 + b^2$*

To observe the relationship between the side lengths of a right triangle, consider the following two images. Each image contains:

1. Four congruent right triangles
2. A large square containing all of the triangles
3. Some amount of empty space, divided into square(s) by the edges of the triangles





Proof. Since the four triangles pictured within each square are congruent and have the same area, the white space within each of the two large squares must have equal area. Since in one image the white space is a square with the hypotenuse, c, of the triangles as an edge, and in the other iage there are two squares, one bounded by the smaller edge, a, of the triangle and one bounded by the larger edge, b, it can be derived from the area of the squares that: $c^2 = a^2 + b^2$ □