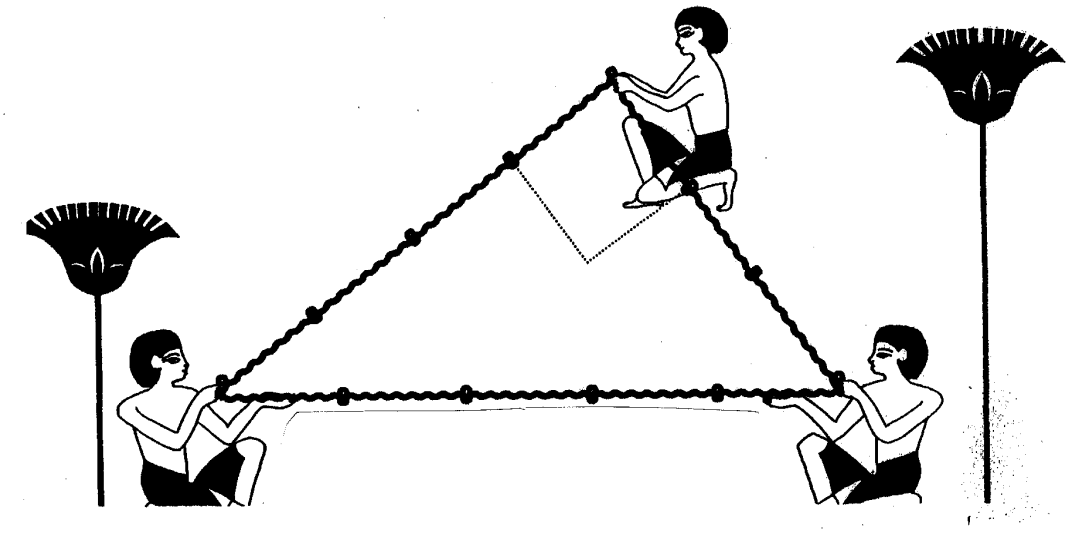
PERIGAL'S PUZZLE



There are hundreds of proofs of the Pythagorean Property.* The proof you will investigate is Perigal's Puzzle. Henry Perigal, a Londoner, discovered this interesting demonstration of a geometric proof in 1830.

The four parts of Square B together with Square A fit exactly on Square C.

Cut out Squares A and B, cut Square B into its four parts and see if you can do it.

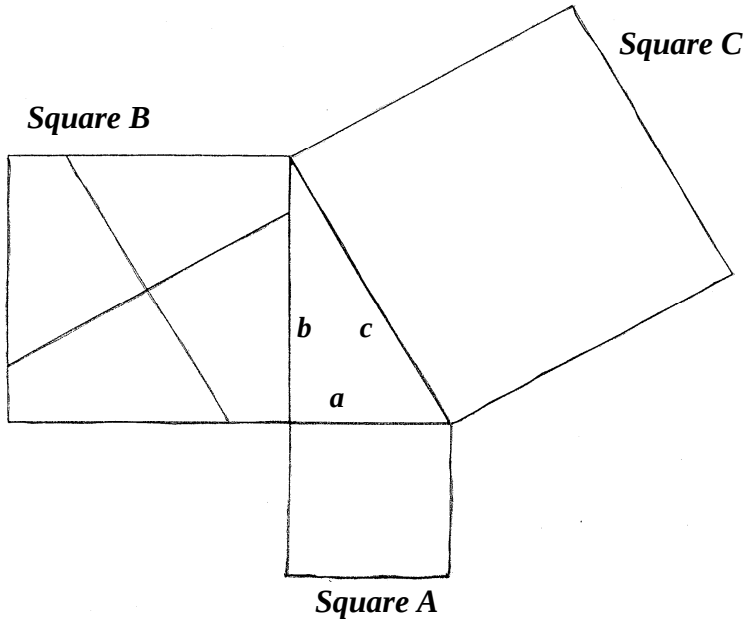
QUESTIONS:

1. How does this demonstration show that the Pythagorean Property "works" for the triangle that is framed by the three squares?

2. Will the same procedure work for any other right triangle? How could you find out?

   Use the following steps to see if it "works" for another triangle:

   a. Construct a right triangle whose sides are not the same length as the one below.
   b. Construct squares on all three sides of your triangle.
   c. Mark the center of the two smaller squares.
   d. Draw lines through these center points that are parallel to the sides of the largest square.
   e. Cut out your puzzle pieces and see if they fit on the largest square.



References:
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THE MATHEMATICS TEACHER: a. “Mathematical Miscellanea” (Apr. 1955); b. “Primitive Pyth. Triples” (Nov. 1959); c. “Pyth. Triples Grouped into Families” (Mar. 1968); d. “If Pythagora Had a Geoboard” (Mar. 1973); e. “. . . in Ancient China” (Jan. 1977)