

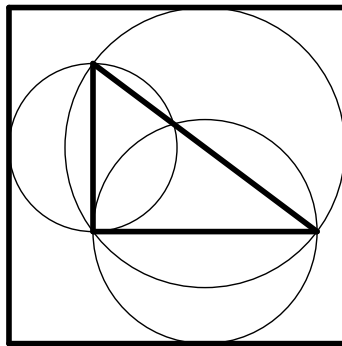
WMU Math Club

Math Challenge Problem

April 2023

The Problem.

Suppose a right triangle is given, where the hypotenuse has length equal to c . Draw 3 circles whose diameters coincide with the sides of the triangle, and draw a rectangle circumscribing the figure in such a way that the sides of the rectangle are parallel to the legs of the triangle. (See the figure.) Prove that this rectangle is a square with side length equal to c .



Instructions.

1. Solve the problem.
2. Type your solution to the problem, preferably in $\text{T}_{\text{E}}\text{X}/\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$.
3. Email your solution to david.richter@wmich.edu with the phrase “March Math Challenge” in the subject field before May 1, 2023.

More Information. If you submit the best solution, explained clearly and completely (and succinctly), then your solution will be posted on the WMU Math Club bulletin board next month, you will be recognized as the winner during the next meeting of the WMU Math Club, and you will receive a prize (probably a book). All undergraduate and graduate students may submit solutions. Please include your name in your write-up. Please make contact with Prof. David Richter if you have any questions.

Report from Last Month. Among the two solutions submitted, only David Shen (KAMSC) was able to produce one that was correct. \sqrt{W}