

Problem of the Month

February 2018

A Touching Problem

Suppose X , Y , and Z are three different circles of equal radius which are mutually tangent. Let circle A be the circle tangent to X , Y , and Z inside the gap between them, and let circle B be the circle tangent to X , Y , and Z that surrounds them. Find the ratio of the radius of B to the radius of A in the form $a + b\sqrt{c}$ where a , b , and c are integers.

- Return solutions to Dr. Scott Dunn at dunns@math.sc.edu or to his mailbox in the Mathematics Department Office in LC 411 no later than February 28th.
- Problems will be graded on correctness, clarity of work, and speed of submission. Please note that we are in competition with Columbia College! Your solutions will be rated against those submitted at Columbia College. The best solution from both schools will be awarded \$15 and the runner-up will be awarded \$5.
- Problems for The Problem Solving Competition are provided by professors and students in the U. S. You will receive a commemorative medallion if your problem is used in the monthly challenge. Send problems and solutions to Dr. Paul Phillips, The Problem Solving Competition Editor, Department of Mathematics, University of Dallas, 1845 E. Northgate, Irving TX 75082