

Problem 5: Touching Circles

Let X, Y, Z be three circles of equal radius that are mutually tangent. Let A be the circle tangent to X, Y, Z inside the gap between them, and let circle B be the circle tangent to X, Y, 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, c are integers.

As always, show your work, fully explain and justify your answer.

Posting Date 10/21/16. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 4 pm on 11/4/16.