Problem 5 (due Monday, April 13)

Positive integers $a<b<c$ are lengths of sides of a right triangle whose inradius is equal to $\gcd(a+1,b)^2$. Find a,b,c.

Three solutions were received: from Yuqiao Huang, Ashton Keith, and Naftoli Kolodny. All three solvers stated correctly that $a=20, b=99, c=101$ is the only solution. Both Yuqiao Huang and Ashton Keith provided complete proof that no other solutions exist (with some small gaps in their arguments). The solution by Ashton Keith follows basically the same ideas as our original solution. The solution by Yuqiao Huang follows slightly different idea, which leads to a shorter and simpler solution. Detailed solutions are discussed in the following link Solution