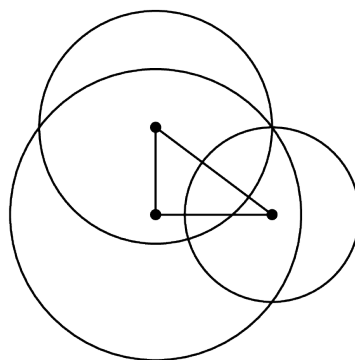# Individual Final Round

I2MC 2024

October 19th 2024

1. Find the sum of all integers x for which $x^2 + 9x + 27$ is a perfect square.

2. Aishwarya has a triangle with side lengths 3, 4, and 5. For each vertex of the triangle, she draws a circle centered around it with radius equal to the length of the side opposite it, as shown below. What is the area of the region covered by the union of the three circles?

3. The average number of positive factors that a positive factor of S has is 5. What is the minimum value of S?