



Problem 1. When 4444^{4444} is written in decimal notation, the sum of its digits is A . Let B be the sum of the digits of A . Find the sum of the digits of B .

Problem 2. Evaluate

$$\sin\left(\frac{\pi}{11}\right) \sin\left(\frac{2\pi}{11}\right) \cdots \sin\left(\frac{10\pi}{11}\right)$$

exactly.

Problem 3. Find the 2000th digit in the square root of $N = 11 \dots 1$, where N contains 1998 digits, all of them 1's.

Problem 4. Can three points with integer coordinates in the plane be vertices of an equilateral triangle? What about in three dimensions?

Problem 5. Can you show how to express any positive fraction as a sum of distinct positive reciprocal whole numbers? For example, $7/3 = 1/1 + 1/2 + 1/3 + 1/4 + 1/5 + 1/20$.

Problem 6. Can the portion of any parabola inside a circle of radius 1 have a length greater than 4?

If you are not in our Discord server, you should definitely join. We will post there handouts, resources, solutions, room/time changes, and (most important of all) pictures whatever food we will have in the meeting. Point your phone camera to the QR code to join it.

