

Time limit: 15 minutes.

Instructions: This tiebreaker contains 5 short answer questions. All answers must be expressed in simplest form unless specified otherwise. You will submit answers to the problem as you solve them, and may solve problems in any order. You will not be informed whether your answer is correct until the end of the tiebreaker. You may submit multiple times for any of the problems, but **only the last submission for a given problem will be graded**. The participant who correctly answers the most problems wins the tiebreaker, with ties broken by the time of the last correct submission.

No calculators.

1. If the pairwise sums of the three numbers x , y , and z are 22, 26, and 28, what is $x + y + z$?
2. Suhas draws a quadrilateral with side lengths 7, 15, 20, and 24 in some order such that the quadrilateral has two opposite right angles. Find the area of the quadrilateral.
3. Let $(n)^*$ denote the sum of the digits of n . Find the value of $((((985^{998})^*)^*)^*)^*$.
4. Everyone wants to know Andy's locker combination because there is a golden ticket inside. His locker combination consists of 4 non-zero digits that sum to an even number. Find the number of possible locker combinations that Andy's locker can have.
5. In triangle ABC , $\angle ABC = 3\angle ACB$. If $AB = 4$ and $AC = 5$, compute the length of BC .