Time limit: 15 minutes.
Instructions: This tiebreaker contains 3 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. The values E, R, I, C (not necessarily distinct) are chosen such that $E \cdot R \cdot I \cdot C = 1600$. How many quadruples (E, R, I, C) exist?

2. Three spheres are centered at the vertices of a triangle in the horizontal plane and are tangent to each other. The triangle formed by the uppermost points of the spheres has side lengths 10, 26, and $2\sqrt{145}$. What is the area of the triangle whose vertices are at the centers of the spheres?

3. Let A be the number of positive integers less than 2019 where x^{2020} has last digit 1. Let B be the number of positive integers less than 2019 where x^{2019} has last digit 6. What is $A - B$?