Time limit: 15 minutes.
Instructions: This tiebreaker contains 3 short answer questions. All answers are positive integers. 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. Given a regular hexagon, a circle is drawn circumscribing it and another circle is drawn inscribing it. The ratio of the area of the larger circle to the area of the smaller circle can be written in the form $\frac{m}{n}$, where m and n are relatively prime positive integers. Compute $m+n$.

2. Quadrilateral $ABCD$ is cyclic with $AB = CD = 6$. Given that $AC = BD = 8$ and $AD+3 = BC$, the area of $ABCD$ can be written in the form $\frac{p\sqrt{q}}{r}$, where p, q, and r are positive integers such that p and r are relatively prime and that q is square-free. Compute $p+q+r$.

3. In unit cube $ABCDEFGH$ (with faces $ABCD$, $EFGH$ and connecting vertices labeled so that $\overline{AE}, \overline{BF}, \overline{CG}, \overline{DH}$ are edges of the cube), L is the midpoint of $\overline{GH}$. The area of $\triangle CAL$ can be written in the form $\frac{m}{n}$, where m and n are relatively prime positive integers. Compute $m+n$.