

Comment: This is version 0.2, ready for earliest testsolving. (Moor only?)

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.

- LJ15** 1. Patricia has a rectangular painting that she wishes to frame. The frame must also be rectangular and will extend 3 cm outward from each of the four sides of the painting. The area of the frame alone (without the painting) is 108 cm^2 . What is the perimeter of the painting (without the frame)?
- LJ17** 2. Antoine, Benoît, Claude, Didier, Étienne, and Françoise go to the cinéma together to see a movie. The six of them want to sit in a single row of six seats. But Antoine, Benoît, and Claude are mortal enemies and refuse to sit next to either of the other two. How many different arrangements are possible?
- LJ16** 3. $ABCD$ is a parallelogram, and circle S (with radius 2) is inscribed inside $ABCD$ such that S is tangent to all four line segments AB , BC , CD , and DA . One of the internal angles of the parallelogram is 60° . What is the maximum possible area of $ABCD$?