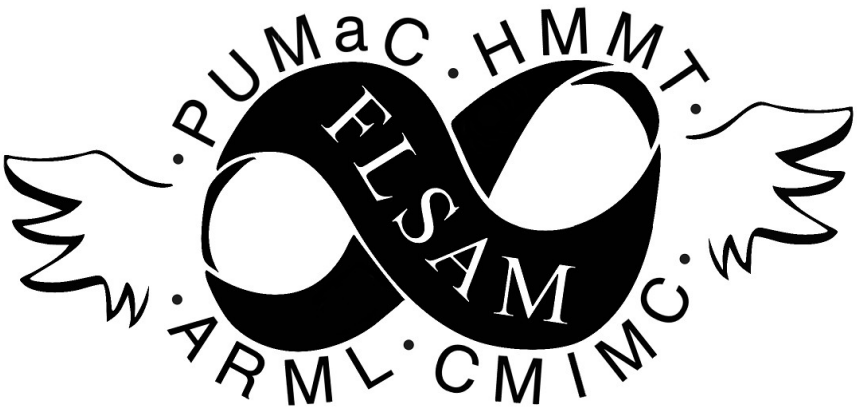
Florida Student Association of Mathematics



2026 Intro Meeting Test

September 19 – 20, 2026

Welcome to the **2026 Intro Meeting Test**! This is the team round, consisting of 10 problems in the subjects of algebra, geometry, number theory, and combinatorics. Each problem is worth 1 point, and all answers are single values.

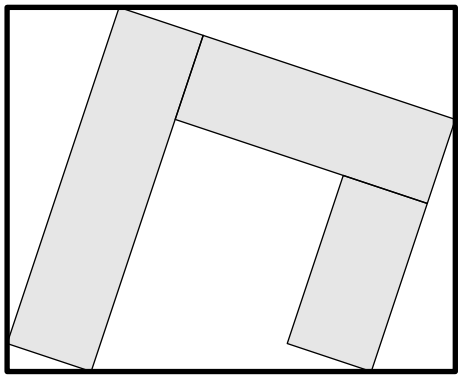
*You will have **50 minutes** to complete the test. Good luck, and have fun!*

1. Ben and Jerry each open an ice cream shop stocked with the same number of tubs. Ben has sold six times as many tubs as Jerry, while Jerry has seven times as many tubs left as Ben. Compute the fraction of his stock Ben has sold.

2. Two distinct points on line AB are each five times as far from A as from B. Given that the distance between the two points is 420, compute the length AB.

3. Let N be a positive rational number such that, when N and $10080N$ are written in lowest terms, the sum of the numerator and denominator is the same. Compute the largest possible value of N.

4. Rectangular blocks with dimensions 1×2, 1×3, and 1×4 are arranged inside a rectangle, as shown below. Compute the area of the rectangle.



5. The equation

$$x^{\log_2 x} = 12x^{12}.$$

has two distinct solutions a and b. Compute $a^{\log_2 b}$.

6. Alice and Bob play a game with a pile of N sticks, taking turns with Alice going first. On each turn, a player must remove at least one stick, but no more than half of the sticks currently in the pile. A player who cannot make a legal move loses. Compute the least positive integer N for which Alice can guarantee a win by removing exactly 2026 sticks on her first move.

7. Let a and b be positive real numbers such that the smallest positive integers r and s for which ab^r and $a^s b$ are integers are 16 and 28, respectively. Compute the smallest positive integer t such that $a^t b^t$ must be an integer.

8. For a finite set $\mathcal{S}$ of positive integers, define the *quiddity* of $\mathcal{S}$ to be the smallest positive integer that cannot be expressed as the sum of elements of any subset of $\mathcal{S}$. Compute the number of sets of the minimum possible number of elements with a quiddity of 2026.

9. Acute triangle ABC with orthocenter H and circumcenter O satisfies $AH = 20$ and $AO = 14$. Line OH intersects the circumcircle of BHC at P such that $\frac{PH}{HO} = 2$. If the circumcenter of BHC is Q, compute the area of OPQ.

10. For a positive integer n, define $f(n)$ to be the remainder when the total number of prime factors of n, counting multiplicity, is divided by 2. Compute

$$\sum_{n=1}^{\infty} \frac{f(n)}{n^2}.$$