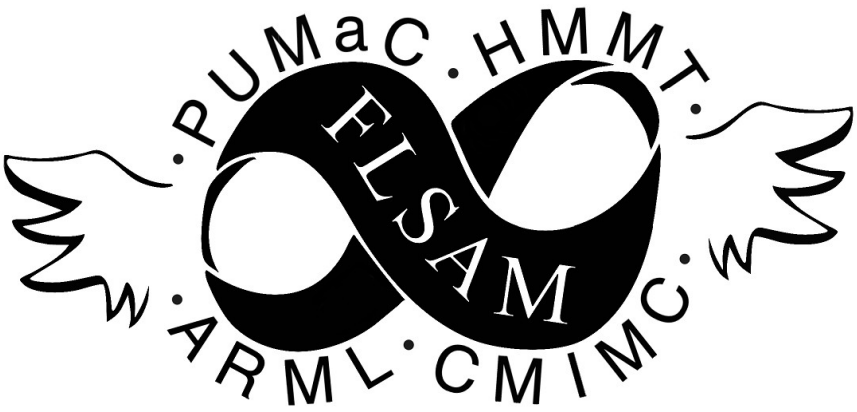
Florida Student Association of Mathematics



2026 FLSAM PUMaC Tryout

October 10 – 11, 2026

Round 1: Algebra

Welcome to the **2026 FLSAM PUMaC Tryout!** This is round one of four, each of which will consist of four problems to be completed in 30 minutes. There is no penalty for wrong answers. Good luck!

Answer Format:
All answers must be **fully simplified**. Restrictions include but are not limited to fully reduced fractions, rationalizing denominators, and fully simplifying radicals. All reasonable fully simplified forms will be accepted in the case that multiple exist.

1. Compute the unique pair of real numbers (a, b) such that

$$\begin{aligned} \lfloor a \rfloor \{b\} &= 8, \\ \{a\} \lfloor b \rfloor &= 12, \text{ and} \\ \lfloor ab \rfloor \{ab\} &= 106. \end{aligned}$$

(Recall, $\lfloor r \rfloor$ is the largest integer less than or equal to r and $\{r\}$ is the fractional part of r.)

2. The graphs of $y = x^2$ and $y = x^3 + 6x^2 - 8$ intersect at three distinct points P, Q, and R. Compute the area of the circumcircle of PQR.

3. Real numbers a, b, and c are such that

$$\begin{aligned} (a+b)(a-c) &= 40, \\ (b+c)(b-a) &= 40, \text{ and} \\ (c+a)(c-b) &= 40. \end{aligned}$$

Compute the smallest possible value of $a + b + c$.

4. For a positive integer n, let $d(n)$ be the number of ordered triplets (a, b, c) of positive integers such that

$$a + 2b + 3c = n$$

and $\gcd(a, b, c) = 1$. Compute

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

Q1	Q2	Q3	Q4