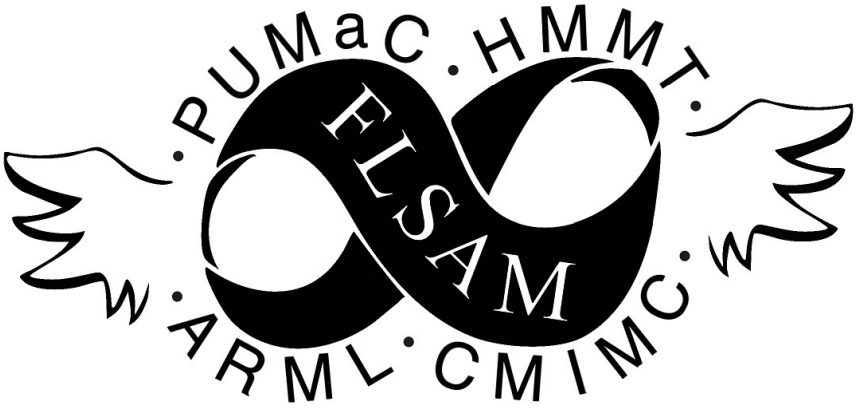
Florida Student Association of Mathematics



2025 FLSAM PUMAC Tryout

October 25-26, 2025

Round 3: Geometry

Welcome to the **2025 FLSAM PUMAC Tryout!** This is round three 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!

1. In parallelogram $ABCD$, the angle bisectors of $\angle A$ and $\angle B$ intersect segment CD and divide the interior of the parallelogram into four regions: two triangles and two quadrilaterals. Given that the triangles have areas 27 and 75, find the area of $ABCD$.

2. Let ABC be a triangle with centroid G. Suppose the reflection of A across B lies on the circumcircle of BGC. Given that $GB = 3$ and $GC = 9$, find the area of ABC.

3. Acute triangle ABC has circumcenter O and circumradius 81. Let line ℓ be the tangent to the circumcircle of ABC at A. Given that the distances from B and C to ℓ are 64 and 144 respectively, find the area of ABC.

4. Let ABC be an acute triangle and ℓ be the angle bisector of $\angle A$. Let N be the intersection of ℓ with BC, and P, Q, and R be the feet of the perpendiculars from A to BC, B to ℓ, and C to ℓ respectively. Given that $PN = 2$, $QN = 3$, and $RN = 4$, find the area of ABC.

Q1	Q2	Q3	Q4