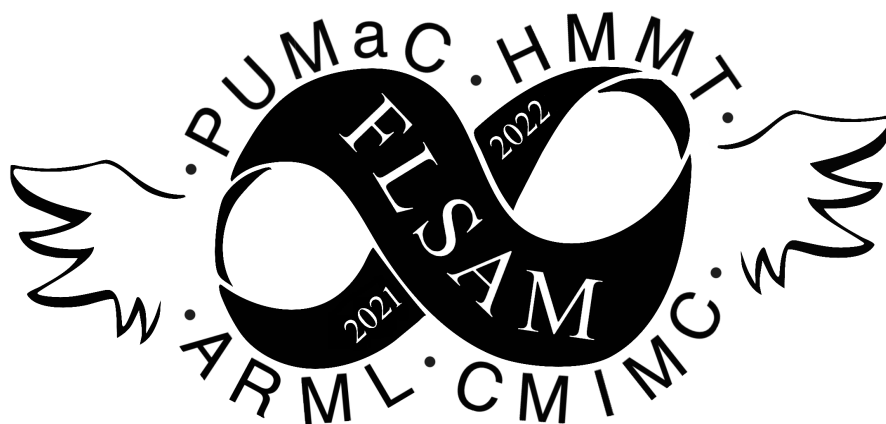


Florida Student Association of Mathematics



2022 ARML Tryout

Set 7 of 7

Welcome to the **2022 FLSAM ARML Tryout!** The tryout will consist of **7 sets** of **2 problems each**. You will have **10 minutes** to work on each set. Write your name and answers directly on each problem set. Scoring is based on the number of correct answers; there is no penalty for wrong answers. Good luck!

Round 7

Name: _____

13. _____

14. _____

13. With the sun directly overhead, a cube suspended in the air casts a shadow on flat ground, forming a hexagon with side lengths 4,1,4,4,1,4 in clockwise order. Compute the surface area of the cube.

14. Let $f(x)$ denote the 3 leading digits of x for integer $x \geq 100$. For instance, $f(420) = 420$ and $f(1337) = 133$. How many possible values can the ordered pair $(f(2^k), f(5^k))$ take for positive integer $k \geq 3^{3^3}$?