Name: ——————————————— School: ———————————————

8-6-24 Delta Contest

Sample Test 3

Correct answers are worth 1 point. Incorrect and blank answers are worth 0 points. You are given 30 minutes to complete the test and no calculators are allowed.

1. ——————— A grocery store worker is creating a pyramid of oranges to attract attention for the store's new sale. The top of the pyramid has 1 orange. The row after that has 4 oranges, and the row after that has 9 oranges. This continues until the pyramid has 10 rows. How many oranges are in the pyramid?

2. ——————— How many times does the graph of $x^2 + y^2 = 4$ intersect the x-axis?

3. ——————— A smaller cube has side length 1/2 that of the larger cube. How much larger is the volume of the larger cube in comparison to the smaller cube?

4. ——————— A certain basketball team has a 1/3 probability of winning any game they play. What is the probability that when they play 7 games, they lose every game?

5. ——————— Give $4x - 5y = 13x + 7y$, what is the value of $\frac{x}{y}$?

6. ——————— ABC is a right triangle with side lengths AB = 3, BC = 4, and AC = 5. A perpendicular bisector is drawn from B down to D, creating two more right triangles. What is the length of segment AD?