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8-6-24 Delta Contest

Sample Test 2

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 palindrome is a number that is the same when you reverse its digits. For example, 12321 is a palindrome. What is the smallest palindrome greater than 345?

2. ⎯⎯⎯⎯⎯⎯⎯ Consider the line $4x + 2y = 10$. It intersects with the y-axis at one point and with the x-axis at one point. What is the area of the triangle determined by these two intersection points and the origin.

3. ⎯⎯⎯⎯⎯⎯⎯ Milton is making a map with a 1:300 ratio. This means an inch on the map corresponds to 300 inches in real life. If a region on Milton's map is 40 inches long, how long is the region in real life?

4. ⎯⎯⎯⎯⎯⎯⎯ A perfect number is a number who divisors (besides itself) sum to the number. For example, 28 is a perfect number. It's divisors that are not 28 are 1, 2, 4, 7, and 14. $1 + 2 + 4 + 7 + 14 = 28$, making 28 a perfect number. What is another perfect number?

5. ⎯⎯⎯⎯⎯⎯⎯ Margaret's cup holds 8 fluid ounces of liquid. She add 4 fl. oz. of coffee and 2 fl. oz. of milk in the cup and stirs. Then she drinks 1/3 of the liquid in the cup. How many fl. oz. of coffee are left in the cup?

6. ⎯⎯⎯⎯⎯⎯⎯ Elliot has 5 different donuts that he could eat for breakfast. He can eat any number of the donuts and leave the ones that he doesn't want. How many ways are there for Elliot to choose donuts to eat?