Relays

The theme of this week's relays is... non-deterministic relays!

1. **SPECIAL AUCTION!** Submit a positive integer between 193 and 223, inclusive. The team that submits the second smallest positive integer will earn 1 point. What is the second smallest answer?

2. Let $T = TNYWR$. Two topologists each collect a power of two number of toruses. One topologist has T more toruses than the other. How many holes are there in total?

3. Let $T = TNYWR$. A rectangle has area T, and one side length is 8 units longer than the other. A string is wrapped around the perimeter of the rectangle. When it is split into components of length 1, how many distinct components are there?

4. Let $T = TNYWR$. Let P denote the product of the digits of T. The number $P \times 3$ is written $P \div 3$ times on a sheet of paper. How many odd digits are there?

5. Let $T = TNYWR$. Campers are practicing their counting and writing skills every day, starting from Day 1. In general, on Day n, campers write the first n positive integers. At the end of some day, they have written exactly T numbers in total. What is the last number written?

6. Let $T = TNYWR$. An ant sits on a vertex of a cube with side length $\frac{T}{2}$ inches. It crawls along the edges of the cube until it has crawled across every edge at least once. The ant takes as short a path as possible. For each inch the ant crawls, it celebrates by writing down the digit 0. How many digits are there in total?