1. Let $S_n = 1 + 2 + \ldots + n$. Define

$$T_n = \frac{S_2}{S_2 - 1} \cdot \frac{S_3}{S_3 - 1} \cdot \ldots \cdot \frac{S_n}{S_n - 1}.$$

Find T_{2015}.

2. Compute

$$\int_{-1}^{1} \frac{x^2}{1 + 2015^x} \, dx.$$

3. Let $a_1, a_2, \ldots, a_k$ be real numbers for some natural number k. Find

$$\lim_{n \to \infty} \left(\frac{(a_1)^n + (a_2)^n + \ldots + (a_k)^n}{k} \right)^{1/n}.$$