1. Determine the radius of convergence of the Taylor series for $\sqrt{x}$ centered at $x = 1$.

2. Use Taylor series to find the exact value of $\sum_{n=0}^{\infty} \frac{1}{2^n n!} + \sum_{n=0}^{\infty} \frac{n}{2^n}$.

3. Use Taylor series to find the 2016th derivative of $f(x) = e^{x^5}$ evaluated at $x = 0$.

4. Find
$$1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \cdots$$