Exercise 1. Find the Taylor series of the function \( f(x) = \ln(1 + x) \) about the point \( a = 1 \).

Exercise 2. Determine whether the series \( \sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{n^{0.99}} \) is absolutely convergent or conditionally convergent.

Exercise 3. Find the radius of convergence of the power series \( \sum_{n=1}^{\infty} \frac{2^n(x - 1)^n}{n^{2/3}} \).

Exercise 4. Evaluate the sum of the series \( \sum_{n=1}^{\infty} \frac{(-1)^{n-1}}{n^{2n}} \).

Exercise 5. Evaluate the sum of the series \( \sum_{n=0}^{\infty} \frac{(-1)^{n}n^{2n+1}}{3^{2n+3}(2n)!} \).

Exercise 6. Write the following integral as a series \( \int_{0}^{1} \frac{x}{e^{x^3}} \, dx \).