

Name: _____

Mark: _____

Mini-math AP Calculus BC: Friday, February 17, 2022 (12 minutes)

1. (2 points) What is the interval of convergence of the following series?

$$\sum_{n=1}^{\infty} \frac{(-1)^{n+1}(x+1)^n}{n^{1/2}2^{2n}}$$

2. (2 points) Evaluate

$$\frac{2^{-2}}{0!} - \frac{2^{-1}}{1!} + \frac{2^0}{2!} - \frac{2^1}{3!} + \frac{2^2}{4!} - \frac{2^3}{5!} + \cdots + \frac{(-1)^n 2^{n-2}}{n!} + \cdots$$

3. (2 points) Give the first three non-zero terms of the Maclaurin series for the function

$$f(x) = (x^2 + 1) \sin x$$

4. (2 points) f is a function with $f(0) = 3$ and $f'(x) = e^{x^2}$. Find the first four non-zero terms of the Maclaurin series for f .