1. [12 points] Compute the exact value of each of the following, if possible. Your answers should not involve integration signs, ellipses or sigma notation. For any values which do not exist, write DNE. You do not need to show work.

   a. [2 points] The integral \( \int_{-10}^{10} (f(x) + 1) \, dx \), where \( f(x) \) is an odd function.

   Answer: \[ 20 \]

   b. [2 points] The integral \( \int_{-3}^{4} \frac{1}{x^4} \, dx \).

   Answer: \[ \text{DNE} \]

   c. [2 points] The sum \( \sum_{n=0}^{2023} 7(5)^n \).

   Answer: \[ \frac{7(1 - 5^{2024})}{1 - 5} = \frac{7}{4}(5^{2024} - 1) \]

   d. [2 points] The radius of convergence for the Taylor series centered around \( x = 0 \) for the function \( g(x) = (1 + 3x^2)^{1/5} \).

   Answer: \[ \frac{1}{\sqrt{3}} \]

   e. [2 points] The infinite sum \( (0.5)^2 - \frac{(0.5)^4}{2} + \frac{(0.5)^6}{3} - \cdots - \frac{(-1)^{n+1}(0.5)^{2n}}{n} + \cdots \).

   Answer: \[ \ln \left( \frac{5}{4} \right) \]

   f. [2 points] The value of \( h''(2) \) where the fourth-degree Taylor polynomial for \( h(x) \) about \( x = 2 \) is given by \( P_4(x) = 2 + 9(x - 2) - 81(x - 2)^4 \).

   Answer: \[ 0 \]