

Homework 21
Calculus II

Due April 28, 2026
Prof. Nollet

Section 9.9:

1. Use Taylor's remainder to estimate the error in each approximation:

39, 40, 41, 44.

2. For functions A - D below, manipulate known Maclaurin series to get the Maclaurin series for $f(x)$. Use your series to compute $f^{(100)}(0)$.

A. $f(x) = x^2 \sin x$ B. $f(x) = x^4 \cos(x^3)$ C. $f(x) = e^{-x^4}$ D. $f(x) = \frac{5x}{1 - 4x^3}$

Section 9.10:

3. Give exact answers to integrals as infinite series:

15, 16, 19, 20

4. Compute the limit by using the first few terms of Maclaurin series:

33, 34, 37, 39.

Hints:

§9.9. #39, 40, 41, 44. Use the Taylor remainder to estimate.

A, B, C, D. Proceed like we did in class on April 23.

§9.10 #15,16,19,20. Use power series, integrate term by term and evaluate.

#33, 34, 37, 39. Use a few terms of power series in Table 9.1 to find limits.