Quiz 4 10am

Q4 for the 10am class is Thursday Oct 24. It covers §11.9
Taylor series

Book

11.8 p751 3, 7, 11, 15 ROC only
11.9 p757 13a, 25, 27, 35a
11.10 p771 2, 5, 11, 17, 25, 45

This Week

Monday: We’ll cover computing with alternating series
Tuesday: You’ll work Taylor series problems.
Wednesday: We’ll look at §11.11 more computing with power series
Thursday: Everyone will take a quiz over finding Taylor series; only 10am class will be graded.
Friday: We’ll finish Taylor series §11.11.

Root/Ratio Practice

Do the following series converge or diverge? Why?

\[ a) \sum \frac{k^32^k+1}{e^{2k}} \quad b) \sum \frac{1}{k^k + \ln(k)} \]
\[ c) \sum \frac{1}{e^k \ln(k)} \quad d) \sum \frac{1}{(k^2 + 1)e^k} \]
\[ e) \sum \frac{\sqrt{k}}{(\ln(k))^k} \quad f) \sum \frac{3^k}{5^k - 4^k} \]

Power Practice

Find a power series in \( x \) for the following; write the first four terms out, and write using summation notation:

1) \( \frac{x}{(1-x)^2} \)  2) \( x \ln(1-x^2) \)  3) \( e^{-x^2} \)

3) Use the series \( e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!} \) to find the first five terms of the series \( e^{-x} \) and then the first two terms of the series for \( \sinh(x) \).

4) Use \( \Sigma \) notation only to show \( \sin(ix) = i \sinh(x) \).