

MATH 151 HW #4: SECTIONS 11.6-11.8

SPRING 2004

Write your name (encoded, if you like) and clearly separate sections!

Show work where appropriate, and use “good form and procedure,” as in class!

This is due when you take Quiz 4 on Sections 11.6-11.8.

Graded out of 10 points.

“*” denotes “See Hint below.”

Read this chapter, particularly the Examples, Illustrations, and blue boxes.

Don't worry as much about proofs of theorems.

In Section 11.7, we will deal with $\int f(x) dx$, not $\int_0^x f(t) dt$.

11.6: 3, 5, 7, 13, 17, 33, 11, 21, 29

Look at 37: Bessel functions are defined in terms of series! They have applications in planetary motion (Bessel was an astronomer), temperature distribution in a circular plate, the shape of a vibrating drumhead, and so on.

Look at 41, 42, 45, 46: Don't use these, though!

11.7: 1*, 3*, 5, 7, 11b*, 15-27 odd, 33, 37*, 38*

Change to 1b, 3b: Deal with $\int f(x) dx$, not $\int_0^x f(t) dt$.

Your answers will have “+ C” in them.

Note on 11b: Keep adding terms until $|1^{\text{st}} \text{ neglected term}| < 0.0005$.

Change to 37: Deal with $\int \frac{\ln(1-x)}{x} dx$. You may use the result from 11a.

Assume $0 < x < 1$. Your answer will have “+ C” in it.

Change to 38: Deal with $\int \frac{e^x - 1}{x} dx$. Assume $x > 0$. Ans.: $\sum_{n=1}^{\infty} \frac{1}{n(n!)x^n} + C$.

11.8: 1, 3, 5, 9-15 odd, 19-29 odd, 52

Look at 17: Can you figure it out?

Note: pp.590-1 in Section 11.9 is good “background” reading!

11.9, 11.10: Skip.