

Homework 3–21-124, Calculus II for Biologists and Chemists

Name: _____
Section: _____

Instructions: Complete the following problems, clearly labeling the problems. Staple this sheet, with your name and section filled in, to the top of your work. Failure to attach this sheet will result in a one point deduction in the grade. The assignment will be graded out of twenty points.

DUE: Friday, February 5, 2016

Book Problems

- Section 7.6: 6, 10, 12, 16, 18, 26, 32
- Chapter 7 Review: 8, 10, 24, 38, 40, 50, 54
- Section 8.1: 6, 10, 14, 16, 20

Other Problems

We can use Taylor Polynomials to approximate integrals as well, so long as the domain of integration is near the center of the Taylor approximation.

1. Calculate

$$\int_{-1}^1 xe^x dx.$$

2. Determine the third degree Taylor polynomial, $T_3(x)$, approximating $f(x) = xe^x$ near zero.

3. Calculate

$$\int_{-1}^1 T_3(x) dx.$$

What is the error of this approximation, that is, what is the absolute value of the difference of this answer with the actual value of the integral?