Math 118 – Week 8 Assignments
Fall Term 2002

Monday October 14: NO CLASS

No Class.

Wednesday October 16 *Class 17*:

Beginning of Anti-differentiation Unit. We will turn to the notion of accumulation, and define accumulation functions, Riemann sums and the definite integral.

Reading:

CiC, p. 297-305

Homework: (#12 (4 points))

CiC, p. 306-7, # 7 (In part (b) the function $E(T)$ is a piecewise-defined function. Provide a symbolic definition of $E(T)$ along with the graph of $E(T)$)

CiC, p. 307-8, #10 abc

Due in *Class 18*

Thursday October 17 Lab #5: Simpson's Rule

Numerical techniques of evaluation of the area under a curve.

Lab 3 Report Due
Lab 4 Due

Friday October 18 *Class 18*:

We will analyze multiple numerical techniques for Riemann summations which over- and under-estimate the area under the bell curve. What determines the sign of the error?

Reading:

CiC, p. 308-320

Homework:

Quiz #6: Numerical Integration

Due in *Class 19*

EXTRA CREDIT HOMEWORK (4 points) Due Friday October 25

Estimate the area under the curve $f(x) = \dfrac{4}{1 + x^2}$ over the interval $[0, 1]$ using Simpson's Rule with 2,4,8,16 subintervals. The exact area is π. How accurate is each of these estimates? That is, how many decimal places agree with the true value of π? Can you find a relationship between Simpson's Error and N the number of subintervals?