CISC271
Fall 2006
Homework for week 8
in preparation for quiz 4

This homework is about numerical quadrature..

Q1. I derived the relation E2 = (S2 -S1)/3 for the adaptive trapezoid rule. Do a similar derivation for Simpson's rule.

Q2. What do the following lines of Matlab do? More to the point what is the value of Z?

```
X = linspace(0,1)
Y = X.^2
Z = (sum(Y) - 0.5)/99
```

The following questions are from Recktenwald Chapter 11.

Questions 1 and 5. asks you to evaluate to integrals by hand and then use the trapezoid (Simpson's rule) by hand and then use the supplied trapezoid (simpson) routines. In if you have access to the symbolic toolbox (this should be installed on the school's machines and it comes with the student version of Matlab) try integrating using the built in symbolic integrator *int*.

Questions 16 and 25 asks you to compare the performance of different numerical quadrature functions.