Project 3B. Integration Algorithms

Due Friday (try to complete this before Wednesday's class) - see HW dropbox

(a) Write a program that computes the integral of $f(x) = 5t^3$ for t ranging from 0 to 1. Use N steps where N can be entered by the user. Use the left rectangle method.

(b) Solve this integral from part a using pencil and paper so you know the correct value. Have your program print out the error (difference between your program's number and the true value) for the left rectangle method.

(c) Alter your program to print the absolute value of the error function of the number of steps, N. Let N range from 5-100 steps.

(d) Send this data to an Excel file and graph the error as a function of N. Include a power fit and comment on your results.

This is also due Friday.

(a) Repeat the above analysis using the midpoint and trapezoidal methods.

Turn in your Excel file.