IAM 550 Introduction to Engineering Computing
Computer Lab 9
Functions, integration
J. Raeder, November 12/14 2019

O**bjectives**:

- Learn to use functions and function handles.
- Learn how to format tables
- Use simple integration algorithms

Deliverables **due no later than 2 days after the end of your lab session:**

A MATLAB diary for your laboratory session (25% of your laboratory grade). This should be submitted via blackboard as an assignment no later than 2 days after your lab.

Deliverables **due at the beginning of your next lab session (November 19 or 21):**

- A lab hard-copy report summarizing your results and including all required files (m-files, plots, tables), but **not any data files**. Make sure your name is on *all* pages of your lab report. Document your script profusely with comments. This will be emphasized when grading.

Task 1 of 2

Download the MATLAB script lab09.m from the web site. This is a skeleton, where you need to fill in the proper code so that it produces the integrals as requested. The code will run as is, but not produce any results. There are also some code sections in there (commented out) to plot the function that you should integrate. You can use that to get an idea what the function looks like. You should also scrutinize the code (as well as the other parts that I wrote) to understand what it does. You *will* see something like this in the final! Discuss the table with regards to the efficiency of the different methods to achieve a given accuracy of the integration.

Task 2 of 2 (not required, 50 extra points)

Add code for the Simpson 3/8 composite integration formula and expand the table accordingly. The formula for the single interval is given on page 40 of lec14.pdf. You need to do a little math to get the composite rule. The rule also imposes that only certain values of N can be used. Make sure that your code increases N accordingly if needed.