

Physics 7412, Fall 2013

Problem set 1

Due date: 9/11/13

General instructions:

In all cases please return a printout of your code and a writeup of your results. Graphs or tables can be turned in to demonstrate scaling of errors, etc. In essence, you should turn in enough material that I am convinced that you did the exercise (i.e. a piece of paper saying Result=42 is unacceptable). You can use any computer language you like but solve the problems reasonably from scratch, not using built-in functions of such high level that the problem is trivial.

Problem 1

Write a computer code to evaluate by the method of Gaussian quadratures with $n = 2, 3, 4$ the integral $\int_1^3 e^x \sin x \, dx$. Write a trapezoid scheme code. Compare the results and scaling of errors.