

Instructions

- Make a document (either in .doc and .pdf) containing code, results. Named the file using both of your Roll nos. *i.e.* 140100001_140100002
- Write Up: (i) Software in which code is written, (ii) output results for each case, and (iii) explanation of results.
- Please upload all assignments to turnitin

Assignment 5

Due date: 10/10/2017, time: 12 midnight

Integration and Differentiation

1. Integrate the following equation using (a) Trapezoidal Rule, (b) Modified Trapezoidal Rule (Evaluate the derivative analytically for the given function to be used here), (c) Simpson's Rule and (d) Gauss Quadrature. (Divide the intervals into 10, 30 and 60 subintervals, and compare the result). (e) Find out the differentiation of same function by forward, backward and central difference.

$$\int_0^3 \exp(-x) \sin(x) dx$$

2. Given tabulated values of the velocity of an object. Obtain an estimate of the distance traveled in the interval [0, 3] by trapezoidal and Simpson method and compare the result.

Time (s)	0	1	2	3
Velocity (m/s)	0	10	12	14