# CDS251HW9 Report

***Submission:*** includes the exact value of the area and a table with the three step sizes, the three computed areas, the three absolute errors, and the three relative errors.

Exact Value: 0.382669121

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Method | Step Size | Computed Area | Absolute Error | Relative Error |
| Midpoint | 1 | 0.390824348 | 8.15522671E-03 | -8.15522671E-03 |
| Midpoint | 0.5 | 0.383268625 | 5.99503517E-04 | -5.99503517E-04 |
| Midpoint | 0.25 | 0.382735223 | 6.61015511E-05 | -6.61015511E-05 |
| Simpson’s | 1 | 0.384842753 | 2.17363238E-03 | -2.17363238E-03 |
| Simpson’s | 0.5 | 0.382796437 | 1.27315521E-04 | -1.27315521E-04 |
| Simpson’s | 0.25 | 0.382676899 | 7.77840614E-06 | -7.77840614E-06 |

***Extra Credit:***Implement Midpoint Rule and Simpson’s Rule. Try h = 1.0, h = 0.5, and h = 0.25. Compare to exact solution (given below). Follow the guidelines above for your report but include both rules