**Math 280: 7.7 Approximate Integrals**

Vanden Eynden

Evaluate the integral: 

Approximate  using the Midpoint Rule with n = 6

Approximate  using the Trapezoidal Rule with n = 6

Approximate  using Simpson’s Rule with n = 6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **n** | **Left Sum** | **Right Sum** | **Trap Sum** | **Midpt Sum** |
| 6 | 0.863382 | 1.125182 | 0.994282 | 1.002862 |
| 12 | 0.933122 | 1.064022 | 0.998572 | 1.000714 |
| 24 | 0.966918 | 1.032368 | 0.999643 | 1.000179 |
|  |   |   |   |   |   |  |   |   |
| **n** | **Error of Left Sum** | **Error of Right Sum** | **Error of Trap Sum** | **Error of Midpt Sum** |
| 6 | -0.136618 | down by | 0.125182 | down by | -0.005718 | down by | 0.002862 | down by |
| 12 | -0.066878 | 51% | 0.064022 | 49% | -0.001428 | 75% | 0.000714 | 75% |
| 24 | -0.033082 | 51% | 0.032368 | 49% | -0.000357 | 75% | 0.000179 | 75% |