

MECH 105: Homework 17

Evaluate the following integral:

$$\int_0^{\pi/2} (8 + 4\cos x) dx$$

1. Analytically
2. Single application of the trapezoidal rule with $n = 1$
3. Composite trapezoidal rule with $n = 4$
4. Single application of Simpson's 1/3 Rule
5. Simpson's 3/8 Rule

For 2 through 5, determine the true percent relative error based on your answer from number 1.