

1. Approximate $\int_1^3 e^{1/x} dx$ using the following rules with $n = 8$:
- (a) Lefthand Rule
 - (b) Righthand Rule
 - (c) Trapezoidal Rule
 - (d) Midpoint Rule
 - (e) Simpson's Rule

Follow Examples 6, 7, and 8 and Definition 6 from my lecture notes for 7.7 to answer the following questions.

2. Given the following integral $\int_0^{\pi/2} \cos(x) dx$.
- (a) Find the approximations T_8 and M_8 .
 - (b) Estimate the errors in the approximations from part (a).
 - (c) How large do we have to choose n so that the approximations for T_8 and M_8 are accurate to within 0.0001?