MATH 371-03 (181)
HW # 2
Due Sept. 25, 2018

Q1. The equation $f(x) = 2 - x^2 \sin x = 0$ has a solution in the interval $[-1, 2]$.

(a) Verify that the Bisection method can be applied to the function $f(x)$ on $[-1, 2]$.

(b) Using the error formula for the Bisection method find the number of iterations needed for accuracy 0.000001. Do not do the Bisection calculations.

Q2. Determine the number of iterations necessary to solve $f(x) = e^{-x} - \cos(x) = 0$ with accuracy 10^{-7} using the Bisection Method on the interval $[2, 7]$.

Q3. If we use the bisection method to approximate a zero of a function on the interval $[2, 3]$, what is the error bound after 12 iterations?