

Numerical Analysis Semester 081 Problem Set 2

Reference: Chapter 03.03 Bisection Method

1. Use your calculator or computer to graph the function on the given interval. -- rough sketch the graph on paper. Then determine an appropriate starting interval(s) for the Bisection Method to find the root(s) of this function on this interval. (Don't have to find roots, just give interval).

a) $x - \cos(x)$ for $-2 \leq x \leq 2$

b) $2x - \tan(x)$ for $-1.4 \leq x \leq 1.4$

2. In table format like Table 1 of Section 03.02, page 03.02.10, fill in for the first 4 iterations the values for the Bisection Method in computing a root of $e^x - x - 3 = 0$ in the interval $[-3.4, -2.6]$.

3. In table format like Table 1 of Section 03.02, page 03.02.10, fill in for the first 4 iterations the values for the Bisection Method in computing a root of $\ln(x) - 2 + x = 0$ in the interval $[6.2, 7]$.

Reference: Class Notes

4. Using the False Position Method, fill in the table for the first 4 iterations of this method for the same function and starting interval of problem 2.