Math 311 Hwk 1

Show your work. Always provide both code and output.

Problem 1 (80 points).

(a). *Let $f(x) = \sin x + (4 - x)$. By plotting and zooming in Matlab, find the root of $f(x)$ to four decimal places.*

(b). *Using the bisection method, find the root of $f(x)$ to four decimal places.*

(c). *Using the secant method, find the root of $f(x)$ to four decimal places. As your initial values, use $x_1 = 3.0$ and $x_2 = 3.14159$.*

(d). *Using the Newton's method, find the root of $f(x)$ to four decimal places. As your initial value, use $x_1 = 3.14159$.*

Problem 2 (20 points). *Graph the run-time for $n \times n$ matrix-multiplication as a function of n using the `loglog` command. Estimate the "Big Oh" growth rate.*