

CSE541 Homework 2
Due Friday, April 11 at class time

For all the following problems, let f be the function:

$$f(x) = \ln(x) - \sin(x/500) - 5.$$

($\ln(x)$ is the natural logarithm of x .)

1. Starting with $a = 1$ and $b = 1000$, how many iterations of the bisection method does it take to reduce the error to 2^{-10} ? Show your work.
2. Starting at $a = 1$ and $b = 1000$, what are the three next points computed by the bisection method? Show your work.
3. Starting at $x_0 = 500$, what are the next two points computed by Newton's method? Show your work.
4. Starting at $x_0 = 10$ and $x_1 = 500$, what are the next two points computed by the secant method? Show your work.