

Math 2215 - Calculus 1

Homework #3

Assigned - 2011.01.28

Name: _____

Textbook problems:

Section 3.1 - 1, 4, 7, 9, 10, 17, 18, , 21-24 all, 28, 30, 49, 50, 52, 61, 62

Section 3.2 - 1-4 all, 5, 8, 11, 14, 16, 22, 25, 27, 29, 31, 34, 35, 38, 42, 43, 44, 49, 57

Fun Problems:

Mathematica Problem 1: Construct a *Mathematica* function which will perform Newton's Method given a function $f(x)$, a starting point x_0 and a tolerance ε to which the root is to be approximated to.

You are to use this Newton's Method function on ALL Newton's Method problems from section 3.1.

Mathematica Problem 2: Create a graphical manipulation of the Newton's Method function from the problem 1, so that the slider corresponds to the k th iteration of Newton's method. The manipulation should give a display of the function, the tangent line, and the points x_{k-1} and x_k which are the points that the tangent line was computed at and the new x -axis intersection, respectively, for each $1 \leq k \leq n$ iteration of Newton's Method.