Numerical Analysis MAT 362: Homework 3

Due on Friday, February 8 in class

Please read the Instructions

- **Show all the steps that you go between the question and the answer. Show how you derived the answer. For your work to be complete, you need to explain your reasoning and make your computations clear.**
- **You will be graded on the readability of your work.**
- **The correct answer with no or incorrect work will earn you NO marks**
- **Show ALL your work**
- Use only four decimal places for all numbers.

Problem 1

Apply **two steps** of Newton's Method with initial guess $x_0 = 0$.

(a) $x^3 + x - 2 = 0$

(b) $x^4 - x^2 + x - 1 = 0$

Problem 2

Apply **two steps** of Newton's Method with initial guess $x_0 = 1$.

(a) $x^3 + x^2 - 1 = 0$

(b) $5x - 10 = 0$

Problem 3

Apply **two steps** of the Secant Method to the following equations with initial guesses $x_0 = 1$ and $x_1 = 2$.

(a) $e^x + x = 7$

(b) $x^3 = 2x + 2$