

WORKSHEET #1: MATH 471
NUMERICAL ANALYSIS COMPUTER LAB

1. Write a MATLAB m-file that evaluates the function

$$f(x) = x^3 - \sinh(x) + 4x^2 + 6x + 9$$

and its derivative. Write a MATLAB m-file that uses this function to plot f and f' on $[0, 1]$.

2. Find a solution of the nonlinear equation

$$x^3 - \sinh(x) + 4x^2 + 6x + 9 = 0 \tag{1}$$

using `bisection.m` from the web site. How many other roots can you find using this code?

3. Write an m-file called `newton.m` that implements Newton's method for finding the roots of the function f defined in 1.