

## Homework Assignment #9

Use **Matlab** to solve the following problems. This homework assignment is very similar to the previous one, except that you will have to organize different methods as separate function files in Matlab.

Given function

$$f(x) = e^x - 1.5 - \tan^{-1} x,$$

1. create *function* files named **bis.m**, **new.m** and **sec.m** for bisection, Newton, and Secant methods respectively.
  2. create a main program file named **rootfind.m** which calls **bis.m**, **new.m** and **sec.m** to locate a root for the given equation by different methods, with  $\text{tol} = 10^{-8}$  within the interval of  $[-20, -1]$ .
  3. make a table to list different methods with the root found and their total iterations for comparison.
- ( 80% for correctness, 10% for programming writing, 10% for presentation )