Lab Title: Newton Raphson Method

Algorithm Design:

1. Input a (Initial guess), N(total iteration) as user input
2. Define error
3. Set a variable to count steps
4. Call the non-linear line function (fun) with initial guess
5. Create a loop while checking the condition as |fun(a)|>error
6. Call the non-linear line function (fun) with initial guess again
7. Call the non-linear line prime (differentiation) function (fun) with initial guess
8. Update initial guess: a_new=a-(value from line 6 / value from line 7)
9. Set a=a_new
10. Check if steps>N (if true, break)
11. End of if
12. Set step as step+1
13. End of loop
14. Print the root as (a)

Input Set: [a=1, e=0.00001, N=50]

Here,

fun = sin(x) + cos(x) + x*(exp(x));
differentiation = (-sin(x)) + cos(x) + x*(exp(x)) +exp(x);