Muhammad Rizwan Khalid

BSCS – 6A

180459

Task: Newton Raphson Implementation:

Main Code:

```
sym x
f = exp(-x) - x;
f = symfun(f,x);
xi = input('Initila Guess for function f:');
err = input('Enter allowed error for function f: ');
root = newton_raphson(xi, f, err);
disp(root);
disp(double(subs(f,root)));
g = -2*x^6 - 1.5*x^4 + 10*x + 2;
g = symfun(g,x);
xi = input('Initila Guess for function g:');
err = input('Enter allowed error for function g: ');
root = newton_raphson(xi, diff(g), err);
disp(root);
disp(double(subs(diff(g),root)));
```

Function code:

```
function [r] = newton_raphson(xi, f, err)
for i=1:100
    r = xi - double(subs(f,xi)) / double(subs(diff(f),xi));
    cer = abs((r-xi)/xi);
    if(cer < err)
        break
    end
    xi = r;
end
```

Output: