

CSE 232- Numerical Analysis Laboratory

Lab 3

1. Root finding using Bisection Method

```
clear all;
clc;
close all;

f = @(x) x.^2-4*x-10;

%f = @(x) x.^4-x-10;
%f = @(x) 3*x-cos(x)-1;
%fplot(f,[-2,2])

a = 5;
b = 6;
for i=0:100
    c=(a+b)/2;
    if(f(a)*f(c)>0)
        a=c;
    else
        b=c;
    end
end

fprintf("The root is %f", c);
```

```
% find the root of a polinomial using bisection method.
%
%f = @(x) x.^2-4*x-10;
clear all;
a(1) = 5 ; b(1) = 6; % initial approximation
for n = 1 : 30
    c(n) = (a(n)+b(n))/2;
    if ((a(n).^2-4*a(n)-10)*(c(n).^2-4*c(n)-10))<0
        a(n+1) = a(n); b(n+1) = c(n);
    else
        a(n+1) = c(n); b(n+1) = b(n);
    end
end
end

c(n)
```

2. Root finding using Regular Falsi method

%Root finding using Regular Falsi method

clear all;

clc;

close all;

f = @(x) x.^2-4*x-10;

%f = @(x) x.^4-x-10;

%f = @(x) 3*x-cos(x)-1;

%fplot(f,[-2,2])

a = 5;

b = 6;

for i=0:20

 c=(a*f(b)-b*f(a))/(f(b)-f(a));

 if(f(a)*f(c)>0)

 a=c;

 else

 b=c;

 end

end

fprintf("The root is %f", c);