Mat Lab

Exercise 2: To find a root of an equation of a single variable using Regular Falsi Method.

Algorithm:

• Start

• Read the function f(x)

• Assign two values (a, b) were the root lies between a and b

• Calculate f(a), f(b) if (f(a)*f(b)<0)

• Then choose a new value c= (a*f(b)- b*f(a))/(f(b)-f(a)) it is the first approximate root

• If f(c) approximately equals 0 then go to Point no 7 else, if

f(a)*f(c)<0 then b=c else, if f(b)*f(c)<0 then a=c.

• New intervals [a, b] automatically updated as per above

conditions.

• Continue the process from point no 4.

• Print c as approximate root.

• End

Program:

regularFalsi.m

```
z=input('Enter the function:','x');
f=inline(z);
average=0
a=input("Enter the minrage: ");
b=input("Enter the maxrange: ");
if f(a)*f(b)<0
  while(1)average= (a*f(b)- b*f(a))/(f(b)-f(a));
  if(f(average)<0.000001 && f(average)>-0.000001)
  break;
end
if f(average)*f(b)<0
  a=average;
end
if f(a)*f(average)<0
  b=average;
end
end
disp("The root is: "),disp(num2str(average))
else
disp("The range is not acceptable\n");
end
```

Output:

```
Command Window
>> regularFalsi

Enter the function:2*x-log10(x)-7
average = 0
Enter the minrage: 3.5
Enter the maxrange: 4
The root is:
3.7893
>>
```