

False Position Method

Enter the function same way as you entered before.

```
function [ iter ] = myfalsep4(f, a,b, tol,n)
%UNTITLED3 Summary of this function goes here--please write
% Detailed explanation goes here -please write
%
%
%
format long
x1=a;x2=b;
iter=0;
f1=feval(f,x1);
f2=feval(f,x2);
%if u*v<0
% display(' false position')
%c=(v*a-u*b)/(v-u);
%w=feval(f,c);
err=1; % it just set it up a big number to go into the loops
disp('-----')
disp('iter    a    b    c    f(c)    |b-a| ')
disp('-----')
fprintf('\n')
if (f1*f2<=0)
    while (abs(x2-x1)>tol)&(iter<=n)&((f1-f2)~=0)
        x=x2-f2*(x2-x1)/(f2-f1);
        fx=feval(f,x);
        if fx*f1>0
            x1=x;f1=fx;
        else
            x2=x;f2=fx;
        end
        iter=iter+1;
        fprintf('%2.0f    %12.8f    %12.8f %12.8f %10.8f\n', iter, x1, x2,
x, fx)

    end;
    if(iter>n)
        disp('Method failed to converge')
    end;
    if(f2-f1==0)
        disp('division by zero')
    end;
else
    disp('The method cannot be applied f(a)f(b)>0')
end;
%not plotting the graph for now
%you may try to plot
%fplot(f,[a0 b0])
%xlabel('x'); ylabel('f(x)'); grid
end
```

Run the m-file for the example in the book .

f =

@(x)cos(x)-x

>> myfalsep4(f,0.5, pi/4,10^(-8),20)

iter a b c f(c) |b-a|

1	0.73638414	0.78539816	0.73638414	0.00451772
2	0.73905814	0.78539816	0.73905814	0.00004518
3	0.73908486	0.78539816	0.73908486	0.00000045
4	0.73908513	0.78539816	0.73908513	0.00000000
5	0.73908513	0.78539816	0.73908513	0.00000000
6	0.73908513	0.78539816	0.73908513	0.00000000
7	0.73908513	0.78539816	0.73908513	0.00000000
8	0.73908513	0.73908513	0.73908513	0.00000000

ans =

8