VODINA EFEM

16ENG03020

ASSIGNMENT 2

Code:

```matlab
commandwindow
clear
clc
format short g
 syms x
 h = exp(-0.5*x)*(4-x)-2
 g = diff(h)
%  x =0.5;
% for f=1:7
%     iter(f+1) = f;
%     v(f+1) = exp(-0.5*x)*(4-x)-2
%     Ea(f+1)=(abs(v(f+1)-v(f))/v(f+1))*100;
%     if Ea(f+1) =(abs(v(f+1)-v(f)/v(f+1)*100;
%         If Ea(f+1)
%         break
%     end
% end
% iter'
% xf'
% Ea'
% tableau =[iter', x', Ea']

x = 0.5;
 for  i =1:7
     iter(i+1)=i
     xf(i) = x
     x = double(subs(x-(h/g)));
     xf(i+1) = x
     Ea(i+1)=(abs(xf(i+1)-xf(i))/xf(i+1))*100;
     if Ea(i+1)<=-1E-9
         break
     end
 end
 iter'
 xf'
Ea'
tableau =[iter', xf', Ea']
```

Command window:

```
h =

- exp(-x/2)*(x - 4) - 2


g =

(exp(-x/2)*(x - 4))/2 - exp(-x/2)


iter =

    0     1


xf =

        0.5


xf =

        0.5       0.83889


iter =

    0     1     2


xf =

        0.5       0.83889


xf =

        0.5       0.83889       0.88496


iter =

    0     1     2     3


xf =

        0.5       0.83889       0.88496
```

```
xf =

        0.5      0.83889      0.88496      0.88571

iter =

    0     1     2     3     4

xf =

        0.5      0.83889      0.88496      0.88571

xf =

        0.5      0.83889      0.88496      0.88571
0.88571

iter =

    0     1     2     3     4     5

xf =

        0.5      0.83889      0.88496      0.88571
0.88571

xf =

        0.5      0.83889      0.88496      0.88571
0.88571       0.88571

iter =

    0     1     2     3     4     5     6

xf =

        0.5      0.83889      0.88496      0.88571
0.88571       0.88571

xf =
```

```
         0.5       0.83889       0.88496       0.88571
0.88571       0.88571       0.88571


iter =

     0     1     2     3     4     5     6     7


xf =

         0.5       0.83889       0.88496       0.88571
0.88571       0.88571       0.88571


xf =

         0.5       0.83889       0.88496       0.88571
0.88571       0.88571       0.88571       0.88571


ans =

     0
     1
     2
     3
     4
     5
     6
     7


ans =

       0.5
    0.83889
    0.88496
    0.88571
    0.88571
    0.88571
    0.88571
    0.88571


ans =

         0
    40.397
    5.2054
```

```
        0.084972
      2.2247e-05
      1.5293e-12
               0
               0


tableau =

        0           0.5               0
        1       0.83889          40.397
        2       0.88496          5.2054
        3       0.88571        0.084972
        4       0.88571      2.2247e-05
        5       0.88571      1.5293e-12
        6       0.88571               0
        7       0.88571               0
```