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ASSIGNMENT 2

Code:

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