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16MHS03030

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



