

```

commandwindow
clear
clc
syms x
format short g
f =(exp(-0.5*x)*(4-x))-2
prosper = diff(f)
x=0.5
for i=1:10
    xf(i)=x
    iter(i+1)=i;
    x=double(subs(x-f/prosper))
    xf(i+1)=x
    Ea(i+1)=abs((xf(i+1)-xf(i))/xf(i+1))*100
end
xf'
iter'
tablo=[iter' xf' Ea']

```

Answers

f =

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

prosper =

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

x =

$$0.5$$

xf =

$$0.5$$

x =

0.83889

xf =

0.5 0.83889

Ea =

0 40.397

xf =

0.5 0.83889

x =

0.88496

xf =

0.5 0.83889 0.88496

Ea =

0 40.397 5.2054

xf =

0.5 0.83889 0.88496

x =

0.88571

xf =

0.5 0.83889 0.88496 0.88571

Ea =

0 40.397 5.2054 0.084972

xf =

0.5 0.83889 0.88496 0.88571

x =

0.88571

xf =

0.5 0.83889 0.88496 0.88571 0.88571

Ea =

0 40.397 5.2054 0.084972 2.2247e-05

xf =

0.5 0.83889 0.88496 0.88571 0.88571

x =

0.88571

xf =

0.5 0.83889 0.88496 0.88571 0.88571 0.88571

Ea =

0 40.397 5.2054 0.084972 2.2247e-05 1.5293e-12

xf =

0.5 0.83889 0.88496 0.88571 0.88571 0.88571

x =

0.88571

xf =

0.5 0.83889 0.88496 0.88571 0.88571 0.88571 0.88571

Ea =

0 40.397 5.2054 0.084972 2.2247e-05 1.5293e-12 0

xf =

0.5 0.83889 0.88496 0.88571 0.88571 0.88571 0.88571

x =

0.88571

xf =

0.5 0.83889 0.88496 0.88571 0.88571 0.88571 0.88571 0.88571

Ea =

0 40.397 5.2054 0.084972 2.2247e-05 1.5293e-12 0 0

xf =

0.5 0.83889 0.88496 0.88571 0.88571 0.88571 0.88571 0.88571

x =

0.88571

xf =

0.5	0.83889	0.88496	0.88571	0.88571	0.88571	0.88571	0.88571	0.88571
-----	---------	---------	---------	---------	---------	---------	---------	---------

Ea =

0	40.397	5.2054	0.084972	2.2247e-05	1.5293e-12	0	0	0
---	--------	--------	----------	------------	------------	---	---	---

xf =

0.5	0.83889	0.88496	0.88571	0.88571	0.88571	0.88571	0.88571	0.88571
-----	---------	---------	---------	---------	---------	---------	---------	---------

x =

0.88571

xf =

Columns 1 through 9

0.5	0.83889	0.88496	0.88571	0.88571	0.88571	0.88571	0.88571	0.88571
-----	---------	---------	---------	---------	---------	---------	---------	---------

Column 10

0.88571

Ea =

Columns 1 through 9

0	40.397	5.2054	0.084972	2.2247e-05	1.5293e-12	0	0	0
---	--------	--------	----------	------------	------------	---	---	---

Column 10

0

xf =

Columns 1 through 9

0.5	0.83889	0.88496	0.88571	0.88571	0.88571	0.88571	0.88571	0.88571
-----	---------	---------	---------	---------	---------	---------	---------	---------

Column 10

0.88571

x =

0.88571

xf =

Columns 1 through 9

0.5	0.83889	0.88496	0.88571	0.88571	0.88571	0.88571	0.88571	0.88571
-----	---------	---------	---------	---------	---------	---------	---------	---------

Columns 10 through 11

0.88571	0.88571
---------	---------

Ea =

Columns 1 through 9

0	40.397	5.2054	0.084972	2.2247e-05	1.5293e-12	0	0	0
---	--------	--------	----------	------------	------------	---	---	---

Columns 10 through 11

0	0
---	---

ans =

0.5

0.83889

0.88496

0.88571

0.88571

0.88571

0.88571

0.88571

0.88571

0.88571

0.88571

ans =

0

1

2

3

4

5

6

7

8

9

10

tablo =

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
8	0.88571	0
9	0.88571	0
10	0.88571	0

>>