

Imman Usman Samda Elect/Elect 17/20604/06

Command window

Clear

clc

syms x

format short g

f = exp(-0.5*x) * (4-x) - 2;

fprime = diff(f);

lambda = 0.5;

For i = 1:10;

iter i+1 = i;

x(i) = x;

x = double (lambdas (x - (f/fprime)))

x_(i+1) = x;

eq(i+1) = abs ((x(i+1) - x_(i)) / x(i+1)) * 100;

if eq(i+1) <= 1e-2;

break

end

end

ZerProg = table (iter', x', eq')

ZerProg.v.Properties.VariableNames = {'iteration number', 'values of x', 'error'}

OUTPUT

Zakou =

Iter	value of x	Error
0	0.5	0
1	0.83889	40.397
2	0.88496	5.2054
3	0.88571	0.084972
4	0.88571	2.2247×10^{-5}
5	0.88571	1.5293×10^{-12}
6	0.88571	0

Command Window

clc

clear

syms x

format short g

$$f = \exp(-0.5 * x) * (4 - x) - 2;$$

$$f_prime = diff(f);$$

$$x = 0.5;$$

for i = 1:10;

iter i+1 = i;

$$x(i) = x;$$

$$x = double(subs(x - (t/f_prime)))$$

$$x(i+1) = x;$$

$$err(i+1) = abs((x(i+1) - x(i)) / x(i+1)) * 100;$$

if err(i+1) <= 1e-21;

break

end

end

Matlab

$$ZaRoju = table('iter', x, 'err')$$

ZaRoju.Properties.VariableNames = {'iteration number', 'value of x', 'error'}

ZaRoju:

iter	Value of x	Error
0	0.5	0
1	0.83889	40.397
2	0.88496	5.2054
3	0.88571	0.084972
4	0.88571	$2.2247e^{-0.5}$
5	0.88571	$1.5293e^{-12}$
6	etc.	