

Command window

clear

clc

syms x

format short g

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

fprime = diff(f);

x = 0.5;

for i = 1:10;

iter(i+1) = i;

X(i) = x;

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

X(i+1) = x;

ea(i+1) = abs((X(i+1) - X(i)) / X(i+1)) * 100;

if ea(i+1) <= 1E-21;

break

end

end

ZaRoguz = table(iter', X', ea')

ZaRoguz.Properties.VariableNames = {'iteration number', 'Values of X', 'errors'}

Output

ZaRoguz

Iter	Values of n	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	0.88571	0