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Matlab code;

Command window

clear

clc

close all

format short g

x(1) = 0.5;

I = 1;

tol = 1e - 21;

max 1 = 50;

err(i) = 0;

syms x

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

$g_{prime} = \text{diff}(g);$

for i = 2:max 1;

$x(i) = (x(i-1)) - (\text{subs}(g, x(i-1))) / \text{subs}(g_{prime}, x(i-1))$

$I = [I, i];$

$\text{err}(i) = \text{abs}(x(i) - x(i-1)) * 100;$

if $\text{err}(i) < \text{tol}$, break, end;

end

table = [I' x' err']

disp table

Table :

1	0.5	0
2	0.83889	33.889
3	0.88496	4.6065
4	0.88571	0.07526
5	0.88751	1.9704E - 05

6

0.88571

1.35456 - 12

7

0.88571

0 -