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17ENG01022

CHEMICAL ENGINEERING.

ENG 382 (ENGINEERING MATHEMATICS II)

MATLAB CODE.

Command window

clear

clc

close all

format short g

X(i) = 0.5;

I = 1;

tol = 1e-21;

maxI = 50;

err(i) = 0;

syms x

g = (exp(0.5 * x) * (1 - x)) - 2;

gprime = diff(g);

for i = 2: maxI;

X(i) = (X(i-1)) - ((subs(g, X(i-1))) / subs(gprime, X(i-1)))

I = [I, i];

err(i) = abs(X(i) - X(i-1)) * 100;

if err(i) <= tol, break, end;

end;

table = [I' X' err']

disp table.

Table:

1	0.15	0
2	0.83339	33.889
3	0.88496	4.6065
4	0.88571	0.07526
5	0.88571	$1.9704e-05$
6	0.88571	$1.3545e-12$
7	0.88571	0