

Command Window

clear

clc

syms x

format short g

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

$$f_{prime} = \text{diff}(f);$$

$$x = 0.5;$$

for i = 1:10;

$$\text{iter}(i+1) = i$$

$$x(i) = x;$$

$$x = \text{double}(\text{subs}(x - (f/f_{prime})))$$

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

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

$$\text{if } eq(i+1) <= 1E-21;$$

break

end

end

$$\text{table} = \text{table}(\text{iter}, x', eq')$$

table.Properties.VariableNames = {'iteration', 'values of x', 'errors'}

Output:

~~table =~~

Table =

Iter	Values 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	$2.2249e-0.5$
5	0.88571	$1.5293e-12.$
6	0.88571	0