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17/ENG01038
Mat Effect
RGG82

Command window

clear

clc

syms x

format short g

$$f = \exp(-0.5 * x)^k (4-x) - z$$

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

$$x = 0.5;$$

for i = 1:10

$$x(i) = x;$$

$$x(i) = x_i$$

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

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

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

$$\text{if } ea(i+1) <= 1e-20$$

break

end

end

Jay Table('ik', 'x', 'ea')

Jay Properties: parameter variable names, {'iteration number', 'value of x', 'error'}

Output

Iteration number	Value of x	errors
0	0.5	0
1	0.83859	40.391
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