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Mechatronics Engineering

ENG 382

Command window

Clear

clc

Syms x

format short g

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

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

$x = 0.5$

for i = 1:10

iter(i+1) = i

$x(i) = x$

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

$x(i+1) = x$

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

if  $eq(i+1) <= 1E-21$

break

end

end

ZaRogiv = table(Iter, x, ea)

ZaRogiv.Properties.VariableNames = {'iteration number', 'val of x', 'errors'}

OUTPUT

Za Rogu =

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	$2.2247 \times 10^{-5}$
5	0.88571	$1.5293 \times 10^{-12}$
6	0.88571	0