Cole Matthews

MATH 230 – Differential Equations

6/15/2023

Exact answer at x=1.5: 2.053216232

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**h=0.1:**

MATLAB Command window output:

Step size (h)?: 0.1

Euler's Method: Y(1.5) = 1.82074

Improved Euler's Method: Y(1.5) = 2.13147

>>

%error on Euler’s method: 11.32%

%error on Improved Euler's method: 3.81%

**h=0.05:**

MATLAB Command window output:

Step size (h)?: 0.05

Euler's Method: Y(1.5) = 1.94236

Improved Euler's Method: Y(1.5) = 2.08501

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%error on Euler’s method: 5.39%

%error on Improved Euler's method: 1.55%

**h=0.01:**

MATLAB Command window output:

Step size (h)?: 0.01

Euler's Method: Y(1.5) = 2.03183

Improved Euler's Method: Y(1.5) = 2.05861

>>

%error on Euler’s method: 1.04%

%error on Improved Euler's method: 0.26%