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18/ENG05/031
Mechatronics Engineering

NUMBER 1

$$A = \begin{pmatrix} 1 & -2 & -1 & 3 \\ 2 & 3 & 0 & 1 \\ 1 & 0 & -4 & -2 \\ 0 & -1 & 3 & 1 \end{pmatrix}$$

$$B = \begin{pmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{pmatrix}$$

$$C = \begin{pmatrix} 10 \\ 8 \\ 3 \\ -7 \end{pmatrix}$$

$$B = A^{-1}C$$

$$B = \begin{pmatrix} -1 \\ 2 \\ -3 \\ 4 \end{pmatrix}$$

NUMBER 2

t = 0:0.1:10

t =

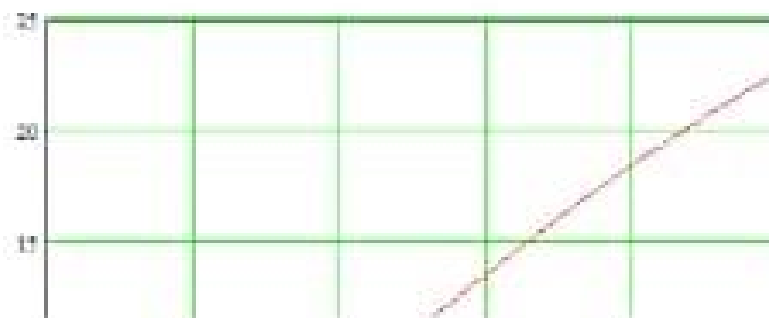
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5

$$y(t) = \sin(0.25t) + 2t - e^{-0.25t} - 2\cos\left(\frac{\pi t}{10}\right)$$

y(t) =

-1
-0.858
-0.702
-0.541
-0.373
-0.197
-0.015

+



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10
B I U
≡ ≡ ≡ ≡ ≡ ≡

0.6
0.7
0.8
0.9
1
1.1
1.2
1.3
1.4
1.5

$$y(t) = \sin(0.25t) + 2t + e^{-0.25t} - 2\cos\left(\frac{\pi t}{10}\right)$$

y(t) =

-1
-0.858
-0.702
-0.541
-0.373
-0.197
-0.015
0.174
0.368
0.568
0.773
0.982
1.197
1.415
1.637
1.864

+

y(t)

