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MECHANICAL
ENG 281

1.

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

$$k := \begin{pmatrix} x1 \\ x2 \\ x3 \\ x4 \end{pmatrix}$$

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

$$k := h^{-1}m$$

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

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

1.2
1.3
1.4
1.5

$$y(t) := \left(\sin(0.25 \cdot t) + 2 \cdot t + e^{-0.85t} \right) - 2 \cos\left(\frac{\pi}{10}\right) t$$

y(t) =

1
0.953
0.913
0.879
0.851
0.827
0.809
0.794
0.784
0.777
0.773
0.772
0.774
0.778
0.784
0.793

