Burutotu Tari

18/ENG06/017

2 The model equation $y = \sin(0.25t) + 2t + e^{-0.2t}$

| [t' y'] | | |
|---|---|---|
| 0 - 1.0000 | 1.4000 | 1.6375 |
| 0.1000 - 0.9555 | 1.5000 | 1.8637 |
| 0.2000 - 0.7024 | 1.6000 | 2.0935 |
| 0.3000 - 0.5413 | 1.7000 | 2.3246 |
| 0.4000 - 0.3726 | 1.8000 | 2.5628 |
| 0.5000 - 0.1969 | 1.9000 | 2.3021 |
| 0.6000 - 0.0146 | 2.0000 | 3.0441 |
| 0.7000 - 0.1738 | 2.1000 | 3.2887 |
| 0.8000 - 0.3861 | 2.2000 | 3.5358 |
| 0.9000 - 0.5679 | 2.3000 | 3.7852 |
| 1.0000 - 0.7727 | 2.4000 | 4.0367 |
| 1.1000 - 0.9824 | 2.5000 | 4.2903 |
| 1.2000 - 1.966 | 2.6000 | 4.5458 |
| 1.3000 - 1.4150 | 2.7000 | 4.8030 |
| 2.9000 - 5.3223 | 2.8000 | 5.0619 |
| 3.0000 - 5.841 | 6.0000 | 13.6218 |
| 3.1000 - 5.873 | 6.1000 | 13.8820 |
| 3.2000 - 6.116 | 6.2000 | 14.1412 |
| 3.3000 - 6.3770 | 6.3000 | 14.3990 |
| 3.4000 - 6.6433 | 6.4000 | 14.6555 |
| 3.5000 - 6.9106 | 6.5000 | 14.9105 |
| 3.6000 - 7.1787 | 6.6000 | 15.1640 |
| 3.7000 - 7.4474 | 6.7000 | 15.4160 |
| 3.8000 - 7.7167 | 6.8000 | 15.4160 |
| ~~3.9000 - 7.9867~~ | 7.0000 | 15.6664 |
| 4.0000 - 7.9866 | 7.1000 | 16.4074 |
| 4.1000 - 8.2568 | 7.2000 | 16.6509 |
| 4.2000 - 8.5274 | 7.3000 | 16.8925 |
| 4.3000 - 9.0692 | 7.4000 | 17.1322 |
| | 7.5000 | 17.3700 |

The set of models of a system is as given in equation (1) with the aid of math CAD estimate the values of the x's in the model equations

$$\begin{bmatrix} x_1 - 2x_2 - x_3 + 3x_4 = 10 \\ 2x_1 - 13_2 + 4 = 8 \\ x_1 - 4x_2 - 2x_4 = 3 \\ -x_2 + 3x_3 + x_4 = -7 \end{bmatrix}$$

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

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

$$D = \begin{bmatrix} 0.026 & 0.2400 & 0.4933 & 0.6667 \\ -0.0733 & 0.1600 & -0.2267 & -0.333 \\ -0.1067 & 0.0400 & 0.0267 & 0.3333 \\ 0.2267 & 0.0400 & -0.3067 & -0.3333 \end{bmatrix}$$

$$E = \begin{bmatrix} -1.0000 \\ 2.0000 \\ -3.0000 \\ 4.0000 \end{bmatrix}$$