

Homework - July 11

Section 4.7

4. $P = [[\mathbf{d}_1]_{\mathcal{A}} \quad [\mathbf{d}_2]_{\mathcal{A}} \quad [\mathbf{d}_3]_{\mathcal{A}}]$ is the change of coordinate matrix from \mathcal{D} to \mathcal{A} . Therefore, i is true and ii is false.

8. The change of coordinate matrix from \mathcal{B} to \mathcal{C} can be found by reducing the augmented matrix $\begin{bmatrix} 1 & 1 & -1 & 1 \\ 4 & 1 & 8 & -5 \end{bmatrix}$ to $\begin{bmatrix} 1 & 0 & 3 & -2 \\ 0 & 1 & -4 & 3 \end{bmatrix}$. We have

$${}_{\mathcal{C} \leftarrow \mathcal{B}} P = \begin{bmatrix} 3 & -2 \\ -4 & 3 \end{bmatrix}, \quad {}_{\mathcal{B} \leftarrow \mathcal{C}} P = ({}_{\mathcal{C} \leftarrow \mathcal{B}} P)^{-1} = \begin{bmatrix} 3 & 2 \\ 4 & 3 \end{bmatrix}.$$