

Homework Solution

§ 3.2

#3. $A \in \mathbb{R}^{4 \times 3}$, $B \in \mathbb{R}^{2 \times 4}$, $C \in \mathbb{R}^{2 \times 3}$, $D \in \mathbb{R}^{3 \times 2}$

(a) AB is not defined.

(b) BA will be 2×4

(c) CD will be 2×2

(d) BC is not defined

(e) CDA is not defined

(f) ADB will be 4×4 .

#7. (a) $X = \begin{bmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix}$

(d) $X = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 1 & 1 & 1 \end{bmatrix}$

(b) $X = \begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(e) $X = \begin{bmatrix} 1/100 & 0 & 0 \\ 0 & 10 & 0 \\ 0 & 0 & -1 \end{bmatrix}$

(c) $X = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix}$

#10. (a) $B = \begin{bmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 \end{bmatrix}$

(c) $B = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

(b) $B = \begin{bmatrix} 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

#16. $R = \begin{bmatrix} 1 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$