

**Assignment:**

**Page 257 # 19 – 26, 31 – 33**

Tell whether each product is defined. If so, give its dimensions.

19.  $A_{2 \times 1}$  and  $B_{2 \times 3}$ ;  $AB$

20.  $A_{2 \times 1}$  and  $B_{2 \times 3}$ ;  $BA$

21.  $C_{3 \times 5}$  and  $D_{5 \times 1}$ ;  $CD$

22.  $C_{3 \times 5}$  and  $D_{5 \times 1}$ ;  $DC$

23.  $E_{7 \times 7}$  and  $F_{6 \times 7}$ ;  $EF$

24.  $E_{7 \times 7}$  and  $F_{6 \times 7}$ ;  $FE$

Use the following matrices for Exercises 25–29. Find each product, if possible.

$$A = \begin{bmatrix} 4 \\ -1 \\ 2 \end{bmatrix} \quad B = \begin{bmatrix} -3 & 0 \\ 7 & -2 \\ 0 & 1 \end{bmatrix} \quad C = \begin{bmatrix} -2 & 3 & -4 \\ 1 & -1 & 1 \\ 4 & 1 & 3 \end{bmatrix} \quad I = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

25.  $AB$

26.  $CA$

27.  $CB$

Use the following matrices for Exercises 31–40. Simplify, if possible.

$$Q = \begin{bmatrix} 4 & 13 & -9 \end{bmatrix} \quad S = \begin{bmatrix} 1 & 2 \\ -1 & 0 \end{bmatrix} \quad T = \begin{bmatrix} 2 & 1 & 0 \\ 2 & 0 & 1 \\ 1 & 2 & 1 \end{bmatrix} \quad A = \begin{bmatrix} 0 & -1 \\ -1 & 4 \\ 2 & 3 \end{bmatrix} \quad B = \begin{bmatrix} 2 & 1 & 3 \\ 0 & 3 & 5 \end{bmatrix} \quad C = \begin{bmatrix} -1 & 1 \\ 1 & -1 \end{bmatrix}$$

31.  $S^2$

32.  $B^2$

33.  $T^2$