

Board Problems  
Lesson 23-Matrix Algebra I

1. Given  $A = \begin{bmatrix} 1 & -2 & 3 \\ 4 & 5 & -6 \end{bmatrix}$  and  $B = \begin{bmatrix} 3 & 0 & 2 \\ -7 & 1 & 8 \end{bmatrix}$ , find:

(a)  $A + B$

(b)  $2A - 3B$

2. Let  $(r \times s)$  denote an  $r \times s$  matrix. Find the sizes of those matrix products that are defined:

(a)  $(2 \times 3)(3 \times 4)$

(b)  $(1 \times 2)(3 \times 1)$

(c)  $(4 \times 4)(3 \times 3)$

(d)  $(5 \times 2)(2 \times 3)$

3. Let  $A = \begin{bmatrix} 1 & 3 \\ 2 & -1 \end{bmatrix}$  and  $B = \begin{bmatrix} 2 & 0 & -4 \\ 3 & -2 & 3 \end{bmatrix}$  Find

(a)  $AB$

(b)  $BA$

4. Find:

(a)  $\begin{bmatrix} 1 & 6 \\ -3 & 5 \end{bmatrix} \begin{bmatrix} 2 \\ -7 \end{bmatrix}$

(b)  $\begin{bmatrix} 2 \\ -7 \end{bmatrix} \begin{bmatrix} 1 & 6 \\ -3 & 5 \end{bmatrix}$

(c)  $\begin{bmatrix} 2 & -7 \end{bmatrix} \begin{bmatrix} 1 & 6 \\ -3 & 5 \end{bmatrix}$