9.2 – Matrices II

A. If two matrices have the same dimensions, they may be added by finding the sums of the corresponding elements.

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

$A + B = \begin{bmatrix} \_\_\_\_\_ & \_\_\_\_\_ & \_\_\_\_\_ \\ \_\_\_\_\_ & \_\_\_\_\_ & \_\_\_\_\_ \end{bmatrix} = \begin{bmatrix} \_\_\_ & \_\_\_ & \_\_\_ \\ \_\_\_ & \_\_\_ & \_\_\_ \end{bmatrix}$

B. If two matrices have the same dimensions, they may be subtracted by finding the difference of the corresponding elements.

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

$A - B = \begin{bmatrix} \_\_\_\_\_ & \_\_\_\_\_ & \_\_\_\_\_ \\ \_\_\_\_\_ & \_\_\_\_\_ & \_\_\_\_\_ \end{bmatrix} = \begin{bmatrix} \_\_\_ & \_\_\_ & \_\_\_ \\ \_\_\_ & \_\_\_ & \_\_\_ \end{bmatrix}$

Example: Top Three Western Conference Teams

Home Games

	Wins	*Losses*
LA Lakers	37	4
Utah	36	5
Portland	35	6

Away Games

	Wins	*Losses*
LA Lakers	26	15
Utah	19	22
Portland	24	17

Add these matrices. What does the result represent?

C. Two matrices are equal <u>only if</u> they have the same dimensions and the elements in all corresponding positions are equal.

Examples: Find the value of each variable.

1. $\begin{bmatrix} x & 3 \\ y & z \end{bmatrix} = \begin{bmatrix} -9 & 3 \\ -2 & -6 \end{bmatrix}$

2. $\begin{bmatrix} x+y & 3 \\ x-y & 5 \end{bmatrix} = \begin{bmatrix} 7 & 3 \\ 1 & 5 \end{bmatrix}$