

## Unit 4.1: Matrices (Pg 185)

Ex#1)  $A = \begin{bmatrix} 8 & 1 & -1 & 2 \\ 2 & -2 & 3 & 1 \\ -1 & 4 & 4 & 7 \end{bmatrix}$   
 $3 \times 4$

$A_{21} = 2$   
 $A_{34} = 7$   
 $A_{32} = 0$

Ex#2  $B = \begin{bmatrix} 1 & 2 \\ -1 & 2 \\ 2 & 3 \end{bmatrix}$   $B_{21} = 1$   
 $B_{32} = 3$   
 $3 \times 2$

## 4.2: Adding + subtracting Matrices (Pg 193)

Ex#1:  $A = \begin{bmatrix} 16 & 2 \\ -9 & 8 \end{bmatrix}$   $B = \begin{bmatrix} -4 & -1 \\ -3 & -7 \end{bmatrix}$   $C = \begin{bmatrix} 8 \\ 6 \end{bmatrix}$   
 $2 \times 2$   $2 \times 2$   $2 \times 1$

$A+B = \begin{bmatrix} 12 & 1 \\ -12 & 1 \end{bmatrix}$

$A-B = \begin{bmatrix} 16 - (-4) & 2 - (-1) \\ -9 - (-3) & 8 - (-7) \end{bmatrix} = \begin{bmatrix} 20 & 3 \\ -6 & 15 \end{bmatrix}$

$A+C$  Not Possible

$5A = 5 \begin{bmatrix} 16 & 2 \\ -9 & 8 \end{bmatrix} = \begin{bmatrix} 80 & 10 \\ -45 & 40 \end{bmatrix}$   $2C = 2 \begin{bmatrix} 8 \\ 6 \end{bmatrix} = \begin{bmatrix} 16 \\ 12 \end{bmatrix}$

$2B - 3A = 2 \begin{bmatrix} -4 & -1 \\ -3 & -7 \end{bmatrix} - 3 \begin{bmatrix} 16 & 2 \\ -9 & 8 \end{bmatrix} = \begin{bmatrix} -8 & -2 \\ -6 & -14 \end{bmatrix} - \begin{bmatrix} 48 & 6 \\ -27 & 24 \end{bmatrix} = \begin{bmatrix} -56 & -8 \\ 21 & -38 \end{bmatrix}$

# Unit 4.1: Matrices (pg 185)

Ex#1)  $A = \begin{bmatrix} 8 & 1 & -1 & 2 \\ 2 & -2 & 3 & 1 \\ -1 & 4 & 4 & 7 \end{bmatrix}$

$3 \times 4$

↔ ↓

$$A_{21} = 2$$

$$A_{34} = 7$$

$$A_{32} = 0$$

Ex#2  $B = \begin{bmatrix} 0 & 1 \\ -1 & 2 \\ -2 & 3 \end{bmatrix}$

$3 \times 2$

$B_{12} = 1$   
 $B_{21} = -1$   
 $B_{32} = 3$

# 4.2: Adding + subtracting Matrices (pg 193)

Ex#1:  $A = \begin{bmatrix} 16 & 2 \\ -9 & 8 \end{bmatrix}$   $B = \begin{bmatrix} -4 & -1 \\ -3 & -7 \end{bmatrix}$   $C = \begin{bmatrix} 8 \\ 6 \end{bmatrix}$

$2 \times 2$                        $2 \times 2$                        $2 \times 1$

$A + B = \begin{bmatrix} 12 & 1 \\ -12 & 1 \end{bmatrix}$

$A - B = \begin{bmatrix} 16 - (-4) & 2 - (-1) \\ -9 - (-3) & 8 - (-7) \end{bmatrix} = \begin{bmatrix} 20 & 3 \\ -6 & 15 \end{bmatrix}$

$A + C$  Not Possible

$5A = 5 \begin{bmatrix} 16 & 2 \\ -9 & 8 \end{bmatrix} = \begin{bmatrix} 80 & 10 \\ -45 & 40 \end{bmatrix}$        $2C = 2 \begin{bmatrix} 8 \\ 6 \end{bmatrix} = \begin{bmatrix} 16 \\ 12 \end{bmatrix}$

$2B - 3A$   $2 \begin{bmatrix} -4 & -1 \\ 3 & -7 \end{bmatrix} - 3 \begin{bmatrix} 16 & 2 \\ -9 & 8 \end{bmatrix}$

$\begin{bmatrix} -8 & -2 \\ -6 & -14 \end{bmatrix} - \begin{bmatrix} 48 & 6 \\ -27 & 24 \end{bmatrix} = \begin{bmatrix} -56 & -8 \\ 21 & -38 \end{bmatrix}$