

## Class Discussion

### Unit 7 Topic 5 Part 1 Matrix Operation 1

If A has a dimension of  $m \times n$  then the form of A will look like  $\begin{pmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{m1} & \cdots & a_{mn} \end{pmatrix}$

$$cA = c \begin{pmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{m1} & \cdots & a_{mn} \end{pmatrix} = \begin{pmatrix} ca_{11} & \cdots & ca_{1n} \\ \vdots & \ddots & \vdots \\ ca_{m1} & \cdots & ca_{mn} \end{pmatrix}$$

$A + B = [a_{ij} + b_{ij}]$  if and only if A and B have the same dimensions

Ex 1: Given  $A = \begin{bmatrix} x & y \\ -y & x \end{bmatrix}$ ,  $B = \begin{bmatrix} w+y & 3 \\ 2x & w+y \end{bmatrix}$  and  $C = \begin{bmatrix} -2 & 3 \\ 4 & a \end{bmatrix}$ , if  $A+2B=C$ , find  $a = ?$

Ex 2: If  $A = \begin{bmatrix} 1 & 2 & 3 \\ -1 & 4 & 5 \end{bmatrix}$ ,  $B = \begin{bmatrix} 2 & 1 & 4 \\ 3 & 1 & 2 \end{bmatrix}$  and  $f(x) = 3x + B$ , find  $f(A) = ?$