

RECITATION 02

Exercise 01

Write each sum as a single matrix

$$\begin{bmatrix} 2 & 3 & 4 \\ -1 & 6 & 2 \\ 1 & 0 & 3 \end{bmatrix} + \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix} \qquad 2 \begin{bmatrix} 6 & 1 \\ 0 & -3 \\ -1 & 2 \end{bmatrix} - 3 \begin{bmatrix} 4 & 2 \\ 0 & 1 \\ -5 & -1 \end{bmatrix}$$

Exercise 02: Write each product as a single matrix

$$\begin{bmatrix} 3 & 1 & -1 \\ 0 & -1 & 2 \end{bmatrix} \begin{bmatrix} 1 & -1 \\ 0 & 2 \\ 1 & 0 \end{bmatrix} \qquad \begin{bmatrix} 3 & -2 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ -2 \end{bmatrix} \qquad \begin{bmatrix} 2 & -2 & -1 \\ 1 & 1 & -2 \\ 1 & 0 & -1 \end{bmatrix} \begin{bmatrix} -1 & -2 & 5 \\ -1 & -1 & 3 \\ -1 & -2 & 4 \end{bmatrix}$$

Exercise 03

$$\text{IF } A = \begin{bmatrix} 1 & 4 \\ 2 & 1 \end{bmatrix}, \quad B = \begin{bmatrix} -3 & 2 \\ 4 & 0 \end{bmatrix}, \quad C = \begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}$$

Q: Find $A^2 + BC$

Exercise 04: Find K such that the following matrices are singular

$$\begin{vmatrix} K & 6 \\ 4 & 3 \end{vmatrix} \qquad \begin{vmatrix} 1 & 1 & -2 \\ 3 & -1 & 1 \\ K & 3 & -6 \end{vmatrix}$$

Exercise 05: Expand the determinants

$$\begin{bmatrix} 1 & 2 & 0 \\ 3 & -1 & 4 \\ -2 & 1 & 3 \end{bmatrix} \qquad \begin{bmatrix} X & 0 & 0 \\ 0 & X & 0 \\ 0 & 0 & X \end{bmatrix}$$

Exercise 06: What is the cofactor of matrix:

$$\begin{bmatrix} 3 & 1 & -4 \\ 2 & 5 & 6 \\ 1 & 4 & 8 \end{bmatrix} \qquad \begin{bmatrix} 2 & -2 & -1 \\ 1 & 1 & -2 \\ 1 & 0 & -1 \end{bmatrix} \begin{bmatrix} -1 & -2 & 5 \\ -1 & -1 & 3 \\ -1 & -2 & 4 \end{bmatrix}$$

Exercise 07: Find the inverse if it exists, of the following matrices

$$\begin{bmatrix} 1 & 3 \\ 2 & -1 \end{bmatrix} \qquad \begin{bmatrix} 0 & -2 & -3 \\ 1 & 3 & 3 \\ -1 & -2 & -2 \end{bmatrix} \qquad \begin{bmatrix} 1 & 2 & -1 \\ -3 & 4 & 5 \\ -4 & 2 & 6 \end{bmatrix}$$