Lesson Two: Types of Matrices

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Types of matrices Covered earlier in lesson One

1. Row Matrix
2. Column Matrix

3. Square Matrix

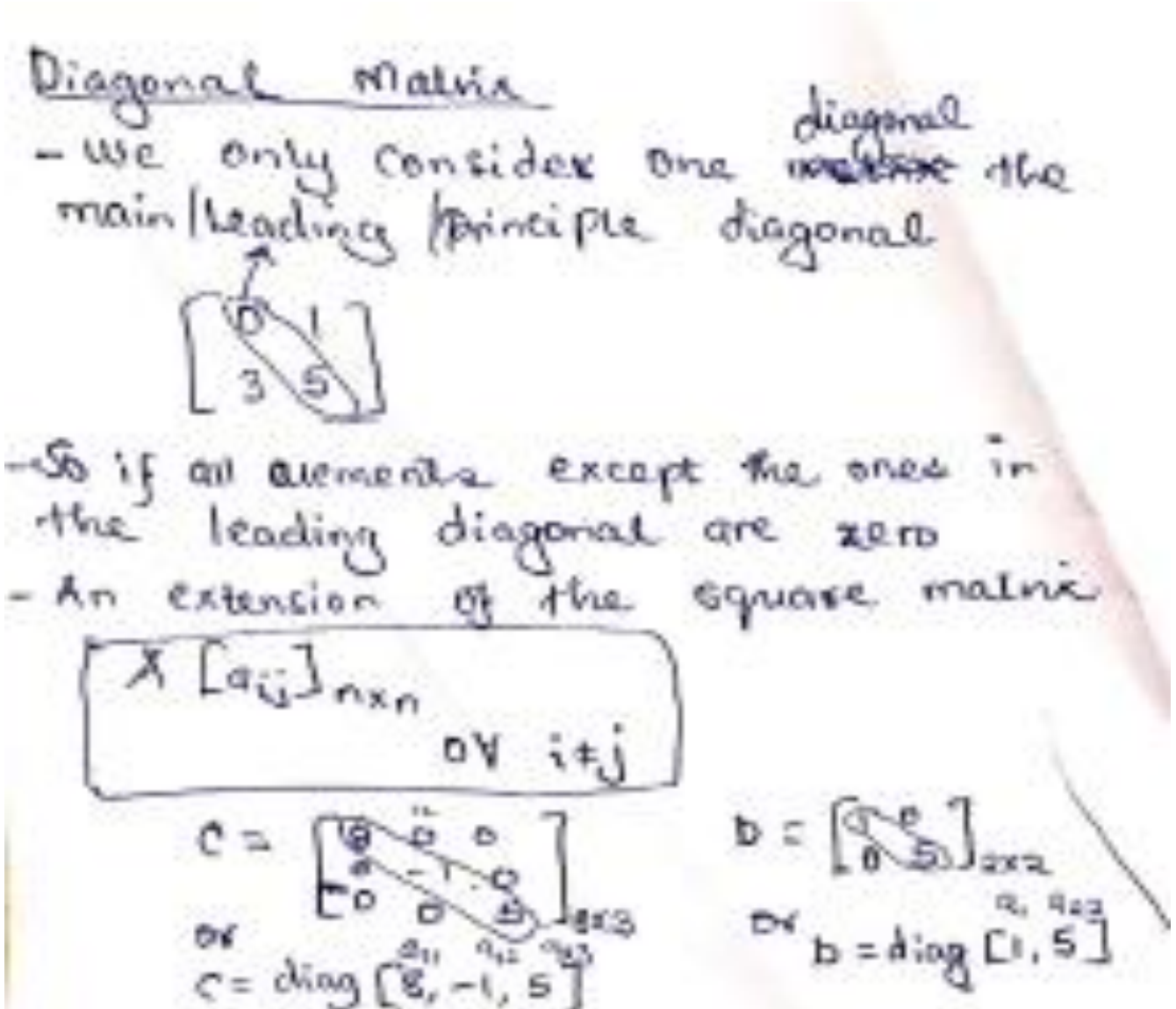
Square Matrix

Number of rows and Columns are the same.

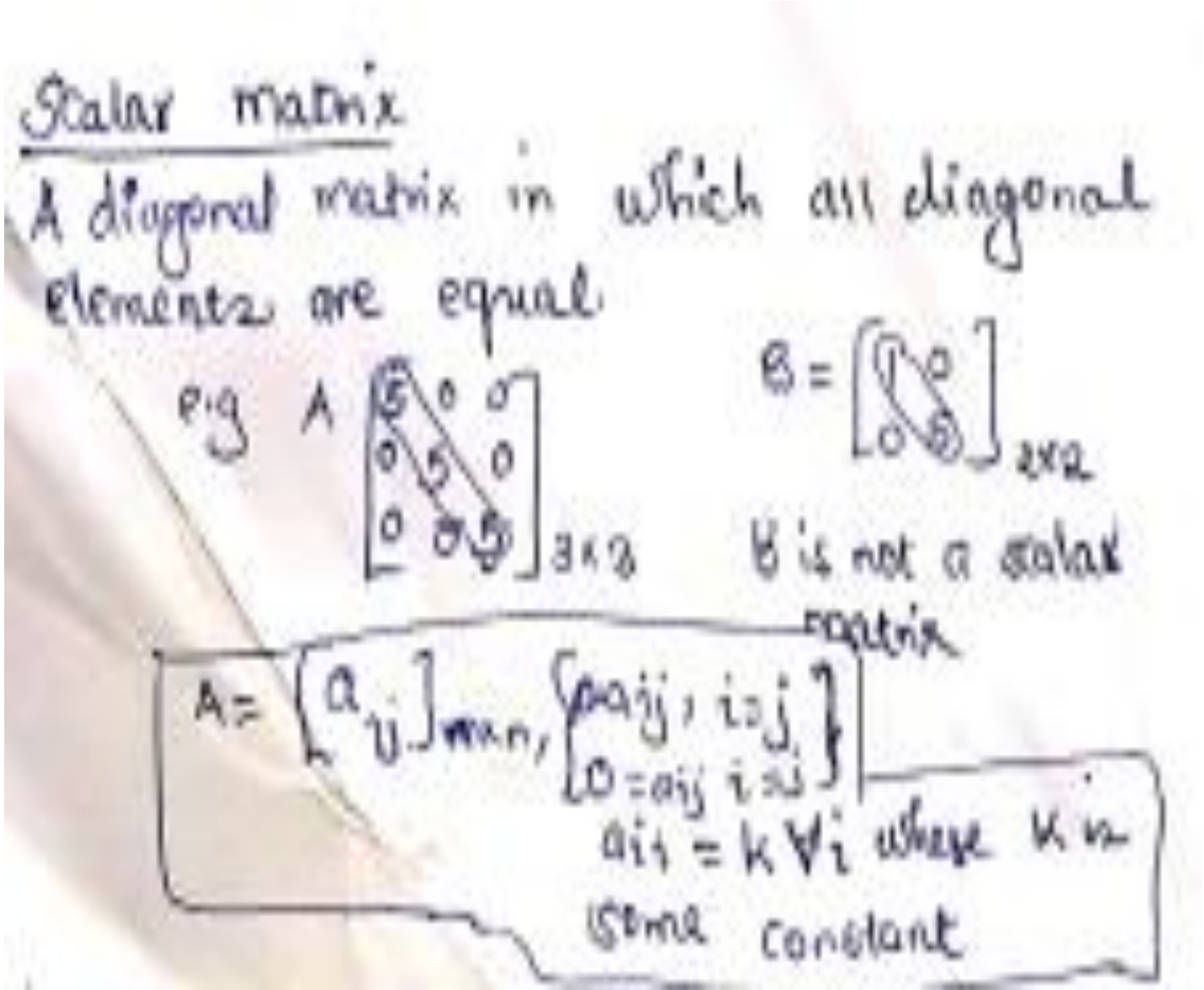
$$A = [a_{ij}]_{n \times n}$$

eg $C = \begin{bmatrix} 0 & 1 \\ 3 & 5 \end{bmatrix}$ A square matrix of order 2.

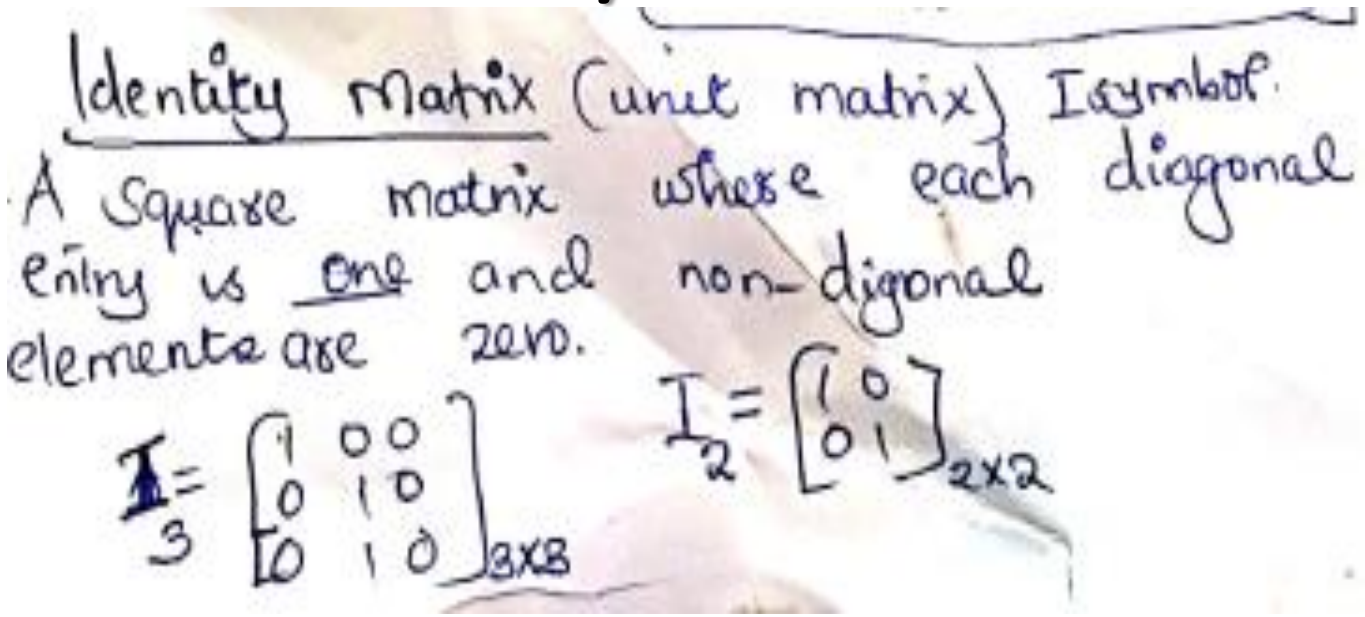
4. Diagonal Matrix

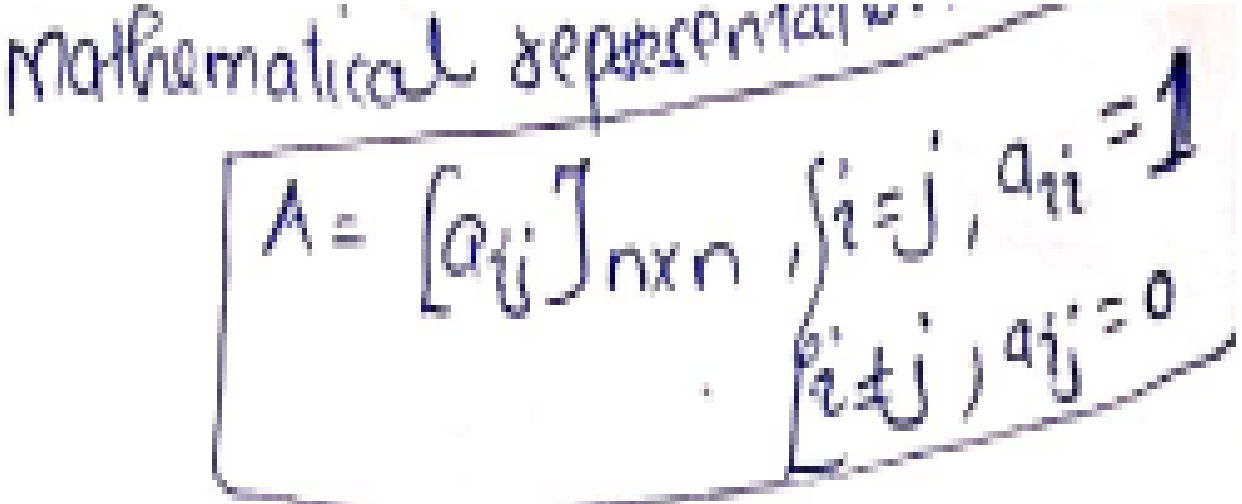


5. Scalar Matrix



6. Identity Matrix





7. Null Matrix

Null matrix (zero matrix)

A matrix whose all element are zero.

This must not be a square matrix

eg $A = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}_{2\times 2}$

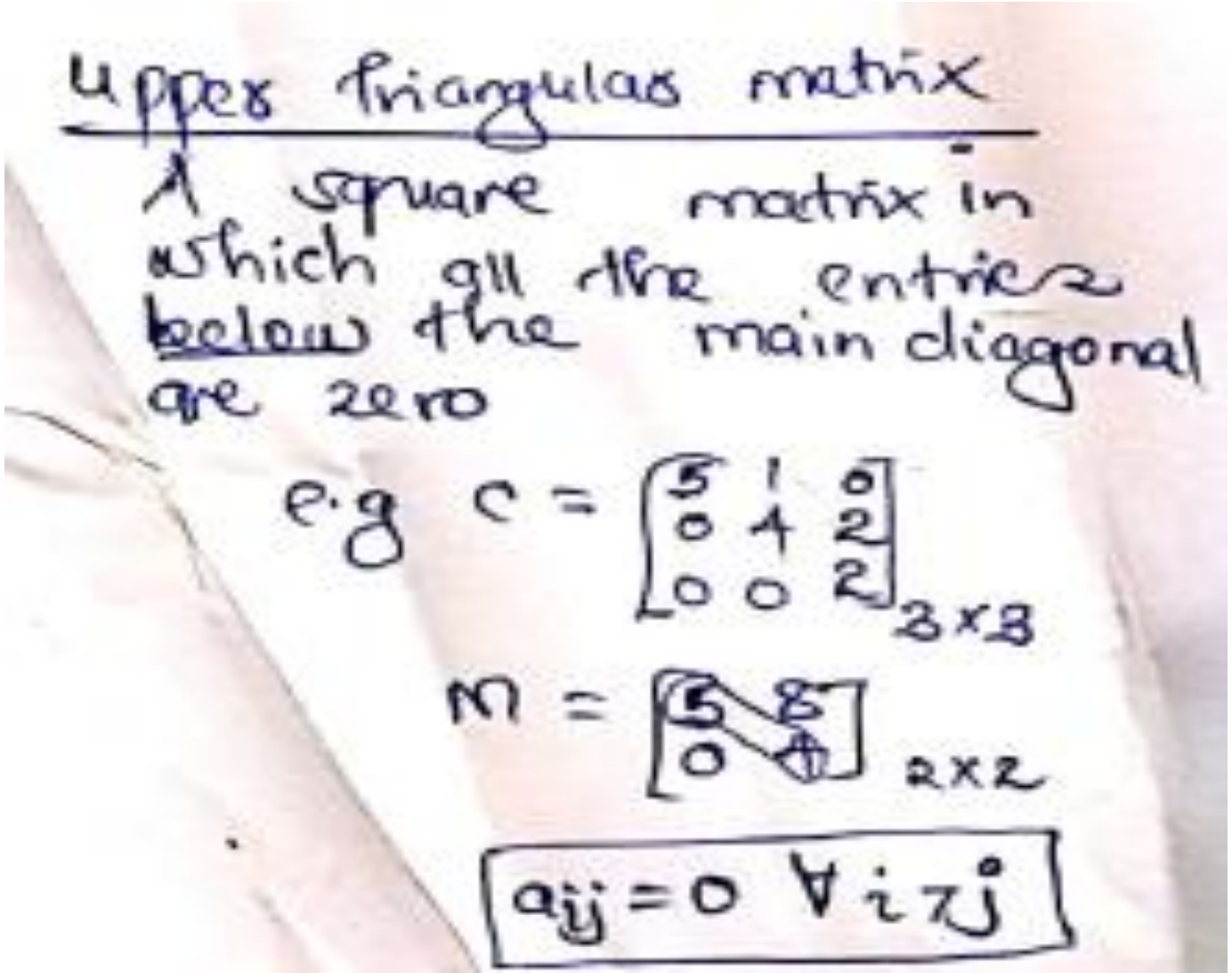
$B = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}_{3\times 3}$

$C = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}_{2\times 3}$

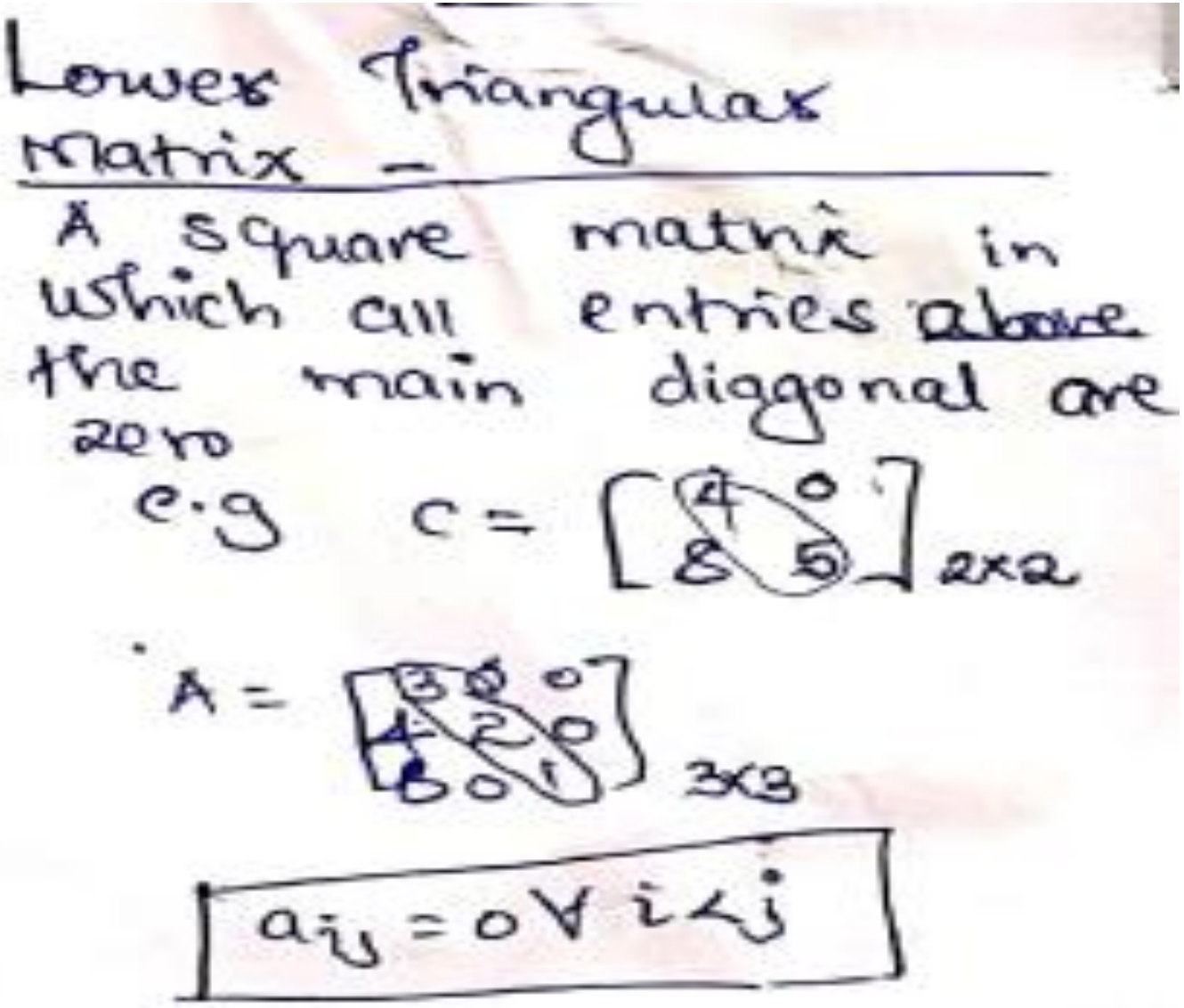
denoted by a O

$$X = [a_{ij}]_{m\times n},\ a_{ij} = 0$$

8. Upper Triangular Matrix



9. Lower Triangular Matrix



Questions? Comments?

Read about the Hermitian matrix and the Skew Hermitian Matrix.

Give examples and provide the mathematical Representation of the matrix