3rd Week Wednesday

10 Mart 2021 Çarşamba 12:26

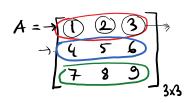
$$\frac{AB}{AB} \neq \frac{B_1}{AB}$$

m = 0

$$\Rightarrow$$

Anxn, Bnxn > AB -> defined, BA -> defined





$$B = \begin{bmatrix} 1 & 3 & 4 \\ \hline & 2 & 2 \\ \hline & 2 & 3 \\ \end{bmatrix}_{3\times 3}$$

$$AB = \begin{bmatrix} -5 & 7 & 7 \\ -8 & 19 & 22 \\ \hline -11 & 31 & 37 \\ \hline & 3 \times 3 \\ \hline \end{bmatrix}$$

$$1.4 + 2.0 + 3.1 = 7$$

$$4.4 + 5.0 + 6.-2 = -8$$

$$4.4 + 5.0 + 6.-2 = -8$$

 $4.3 + 5.-1 + 6.2 = 12-5+12 = 19$
 $4.4 + 5.0 + 6.4 = 16+6 = 22$

$$4.4 + 5.0 + 6.1 = 16+6 = 22$$

$$7.1 + 8.0 + 9.-2 = 7+-18 = -11$$

$$7.3 + 8.-1 + 9.2 = 21-8+18 = 31$$

$$7.4 + 8.0 + 9.1 = 28 + 9 = 37$$

$$\beta = \begin{bmatrix} 1 & 3 & 4 \\ 0 & -1 & 0 \end{bmatrix}$$

$$A = \begin{bmatrix} 1 \\ 4 \\ 5 \\ 4 \end{bmatrix}$$

$$BA = \begin{bmatrix} 41 & 49 & 57 \\ -4 & -5 & -6 \\ 13 & 14 & 15 \end{bmatrix}$$

$$1.3 + 3.6 + 4.9 = 3 + 18 + 36 = 57$$

$$0.1 + -1.4 + 0.7 = -4$$

$$0.2 + -1.5 + 0.8 = -5$$

$$0.3 + -1.6 + 0.9 = -6$$

$$-2.1 + 2.4 + 1.7 = -2 + 8 + 7 = 13$$

$$-2.2 + 2.5 + 1.8 = -4 + 10 + 8 = 14$$

$$-2.3 + 2.6 + 1.9 = -6 + 12 + 9 = 15$$

⇒ AB ≠ BA

Transpose

$$A = \left[a_{ij} \right]_{m \times n} \longrightarrow A^{T} = \left[a_{ji} \right]_{n \times m}$$

$$A^{T} = \begin{bmatrix} 1 \\ 2 \end{bmatrix} \begin{pmatrix} 3 \\ 4 \end{pmatrix} \begin{pmatrix} 3 \\$$

$$\frac{\text{Symmetric Matrix}:}{(\text{square})} A^{T} = A$$

$$A A^{T}$$

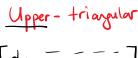
$$A \times A^{T}$$

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 5 & 6 \\ 3 & 6 & 9 \end{bmatrix} = A$$

$$A = \begin{bmatrix} 0 & 2 & 3 \\ -2 & 0 & 6 \\ -3 & -6 & 0 \end{bmatrix} = \begin{bmatrix} -A^{T} = \begin{bmatrix} 0 \\ -2 & 0 \\ -3 & -6 & 0 \end{bmatrix}$$

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

Iriangular Matrix:





$$A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 2 & 0 & 2 \\ 0 & 0 & 0 & 3 \\ 0 & 0 & 0 & 3 \end{bmatrix} \rightarrow upper + riangular$$

I dentity Matrix: $A_{nxn} = A_{nxn}$ The identity experiment of multiplication $I_n = A_{nxn} = A_{nxn}$

$$T_{n} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

(square)

The Multiplicative Inverse of a Watrix

$$\begin{cases} A & B = I_{n} \\ B & A = I_{n} \end{cases}$$

$$\begin{cases} A B = I_n \\ B A = I_n \end{cases}$$
The multiplicative inverse of π .

$$(A = B^{-1} \text{ also})$$

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}_{2 \times 2}$$

$$AB = \begin{bmatrix} 0 \\ 0 \end{bmatrix} \qquad B = ?$$

$$AB = \begin{bmatrix} 12 \\ \hline 34 \end{bmatrix} \begin{bmatrix} a \\ c \\ d \end{bmatrix} = \begin{bmatrix} 00 \\ \hline 01 \end{bmatrix}$$

$$1.a + 2.c = 1$$

 $1.b + 2.d = 0$
 $3.a + 4.c = 0$
 $3.b + 4.d = 1$