Key Takeaways

Special types of Matrices

- Orthogonal Matrix

A square matrix A is said to be orthogonal if $AA^T = I = A^T A$

For orthogonal matrix A, $A^T = A^{-1}\ (|A| = \pm 1)$

Example: If A is orthogonal and $ABA = B^T$, then show that BA is symmetric .

$ABA = B^T$

Pre multiply A^T on both sides $A^T ABA = A^T B^T$ $AA^T = I$

$\Rightarrow I \cdot BA = A^T B^T \Rightarrow BA = A^T \cdot B^T$

$BA = (BA)^T \Rightarrow BA$ is symmetric .

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