



Key Takeaways



Proof:

$$C^T = (-A)(-A) \dots (-A) \text{ (up to } n \text{ times)} = (-1)^n A^n$$

Let $C = A^n, n \in \mathbb{N}$ $C^T = (-1)^n A^n$

A^n, n is even

$-A^n, n$ is odd

$$C^T = \begin{cases} C, n \text{ is even} \rightarrow \text{symmetric matrix} \\ -C, n \text{ is odd} \rightarrow \text{skew-symmetric matrix} \end{cases}$$