

## Matrix Properties :

- $adj(AB) = adj(B) Adj(A)$

Proof :

$$(AB)^{-1} = \frac{adj(AB)}{\det(AB)}$$

$$\text{Or } adj(AB) = (AB)^{-1} \cdot \det(AB) \dots (1)$$

$$\text{It is also known } = (AB)^{-1} \cdot \det(AB)$$

$$\text{And } \det(AB) = \det(A) \cdot \det(B) \dots (2)$$

$$\text{Also, } A^{-1} = \frac{adj(A)}{\det(A)} \quad B^{-1} = \frac{adj(B)}{\det(B)}$$

$$\text{Or } adj(B) \cdot adj(A) = \det A \cdot \det B \cdot B^{-1} \cdot A^{-1} \dots (3)$$