

# Matrices

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$$\underline{(AB)^{-1}} (AB) = I$$

$$(AB)^{-1} \underbrace{AB B^{-1} A^{-1}}_I = I \cdot B^{-1} A^{-1}$$

$$(AB)^{-1} = B^{-1} A^{-1}$$

$$\begin{array}{c} A \quad B \\ m \times p \quad p \times n \\ \quad \underbrace{\hspace{2em}} \\ \quad \text{same} \\ \quad \Downarrow \\ \text{size} = m \times n \end{array}$$

# col in A  
must match  
# rows in B

$$(3 \times 3)(3 \times 4) \rightarrow 3 \times 4$$

$$(3 \times 2)(4 \times 1) \quad \underline{\text{NO}}$$

$$(3 \times 2)(2 \times 2) \rightarrow 3 \times 2$$