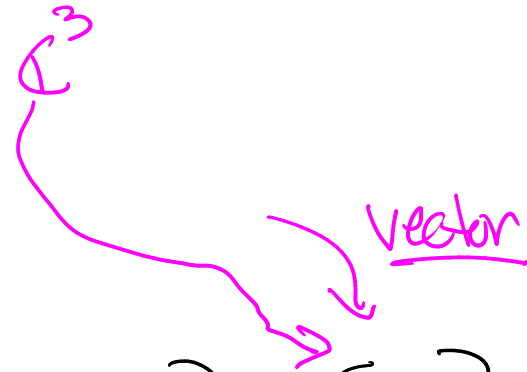


Ex

$$\begin{bmatrix} 2 & 3 & -1 \\ 4 & 5 & 2 \\ -1 & 0 & 4 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \\ -3 \end{bmatrix}$$

3x3 3



MVP

$$= 2 \begin{bmatrix} 2 \\ 4 \\ -1 \end{bmatrix} + 1 \begin{bmatrix} 3 \\ 5 \\ 0 \end{bmatrix} + (-3) \begin{bmatrix} -1 \\ 2 \\ 4 \end{bmatrix} = \begin{bmatrix} 10 \\ 7 \\ -14 \end{bmatrix}$$

Fri MISLE

Backgrounds: Movies

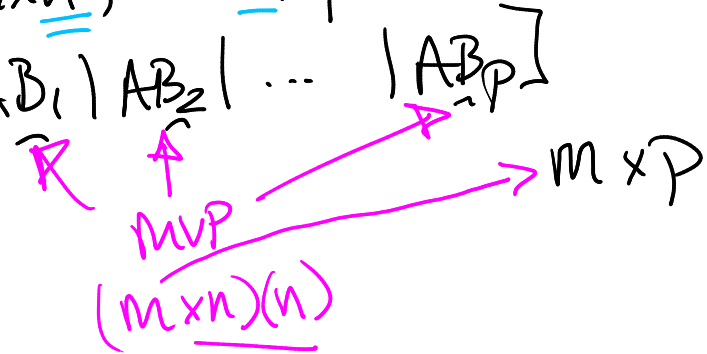
Mon MINM

Tue Problems

Defn Matrix Multiplication

$A_{m \times n}, B_{n \times p}$

$$AB = A [B_1 | B_2 | \dots | B_p] = [AB_1 | AB_2 | \dots | AB_p]$$



$$(m \times n)(n \times p) = m \times p$$

Theorem MMT $A_{m \times n}$, $B_{n \times p}$ $(AB)^t = B^t A^t$

Proof

For $1 \leq i \leq p$, $1 \leq j \leq m$

$$\begin{aligned} [(AB)^t]_{ij} &= [AB]_{ji} \\ &= \sum_{k=1}^n [A]_{jk} [B]_{ki} \\ &= \sum_{k=1}^n [A^t]_{kj} [B^t]_{ik} \\ &= \sum_{k=1}^n [B^t]_{ik} [A^t]_{kj} \\ &= [B^t A^t]_{ij} \end{aligned}$$

Defn ME \Rightarrow
 $(AB)^t = B^t A^t$