Deep Learning - Mouth Excertise

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given that A = a ab

I. Write the transpose wheet is the transpose of!

$$B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

a Martix A's transpose 2. Prove that the transpose of is A: $(A^T)^T = A$

Show that

$$(f) = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

3. show that the sum of tremsposes is equal to the trumspose of a sum. show that AT+BT = (A+B) where A = [4 6 | B= [e f]

$$\begin{array}{ccc}
\text{L. H. S} & \text{R. H. S} \\
\text{AT + B}^{T} & = (\text{A} + \text{B})^{T}
\end{array}$$

$$= A^{T} + B^{T} = (A+B)$$

$$= \begin{bmatrix} a & c \\ b & d \end{bmatrix} + \begin{bmatrix} e & g \\ f & h \end{bmatrix} = \begin{bmatrix} \begin{bmatrix} a & b \\ c & d \end{bmatrix} + \begin{bmatrix} e & f \\ g & h \end{bmatrix}$$

$$= \begin{bmatrix} a+e & c+g \\ b+f & d+h \end{bmatrix} = \begin{bmatrix} a+e & b+f \\ c+g & h+d \end{bmatrix}^{T}$$

4. Show that the transpose of a product is	de
equal to the product of trainsposes.	
$(AB)^{T} = B^{T}A^{T}$	
11V(m) thus	
A = [a b], R-[o f]	
$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}; B = \begin{bmatrix} e & f \\ g & h \end{bmatrix}$	
L. H. S R. H. S	
= (AB) T = BTAT	7
	11
= [a b] [ef] = [ef] [a b] [a]	
([cd][gh]] [gh] [cd]	
= \[\left[\frac{ae+bg}{ce+dg} \frac{af+bh}{cf+dh} \right] = \left[\frac{e}{f} \hrac{g}{h} \right] \cdot \frac{a}{h} \right]	
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- Captha cetda 7 Captal calla 7	
= [ae+bg ce+dg] = ae+gb ce+dg] af+bb cs+dh] = af+bb sc+hd]	
[The Jetha	
L. H.S = R.H.S	
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