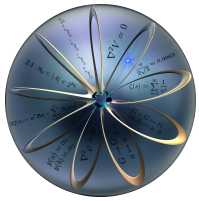

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example of trace of a matrix

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Let $A = \begin{bmatrix} 2 & 4 & 6 \\ 8 & 10 & 12 \\ 14 & 16 & 18 \end{bmatrix}$, $A' = \frac{1}{2}A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$ and $B = \begin{bmatrix} 9 & 8 & 7 \\ 6 & 5 & 4 \\ 3 & 2 & 1 \end{bmatrix}$
then

$$\begin{aligned} \operatorname{trace}(A+B) &= \operatorname{trace}(A) + \operatorname{trace}(B) \\ &= (2+10+18) + (9+5+1) \\ &= 45 \end{aligned}$$

$$\begin{aligned} \operatorname{trace}(A) &= \operatorname{trace}(2A') \\ &= 2 \cdot \operatorname{trace}(A') \\ &= 2 \cdot \operatorname{trace} \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \\ &= 2 \cdot (1+5+9) \\ &= 30 \end{aligned}$$