

Quiz 11

Let $A \in M_{m,n}(\mathbb{R})$. Prove directly from the definitions that $I_m A = A$, where $I_m \in M_m(\mathbb{R})$ is the identity matrix.

$$\begin{aligned} I_m A &= I_m (\vec{a}_1 \dots \vec{a}_n) \\ &\stackrel{\text{def}}{=} (I_m \vec{a}_1 \dots I_m \vec{a}_n) \\ &= (\vec{a}_1 \dots \vec{a}_n) \\ &= A \end{aligned}$$