Maths Notes November 17, 2024

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$$\begin{bmatrix} a & b \\ c & d \end{bmatrix}^T = \frac{1}{ad-bc}\begin{bmatrix} d & -b \\ -c & a \end{bmatrix} \quad \text{(Transpose of a matrix and its inverse)} \quad (1)$$

$$\forall M \in M_2(\mathbb{R}),\ |M| \neq 0 \quad \text{(Condition for invertibility)} \quad (2)$$

$$\exists M \in M_2(\mathbb{R}) : M^{-1} = I_2 \quad \text{(Existence of an inverse matrix)} \quad (3)$$