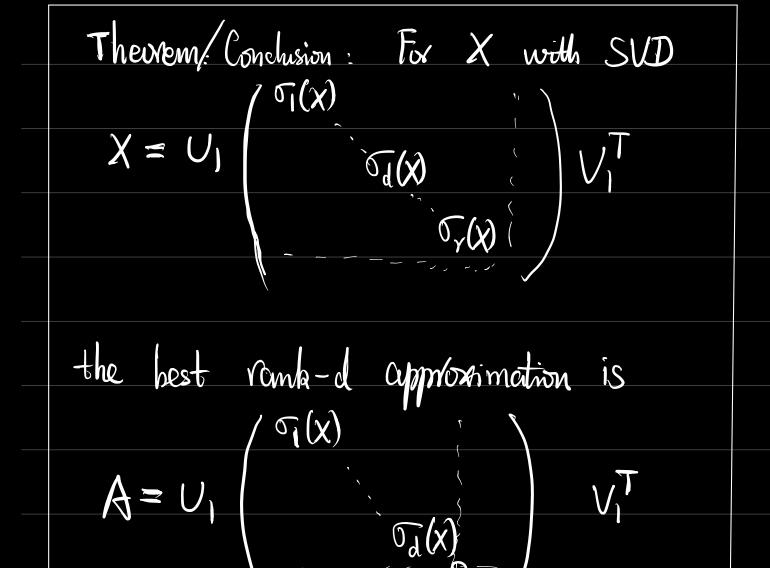
Thus $\|X-A\|_F^2 = \|\Sigma_1\|_F^2 - 2(\Sigma_1, U\Sigma_2V^T)_F + \|U\Sigma_2V\|_F^2$ Von-Neumann's megality.

> IIIIF - 2 50; (X) 0; (A) + 1152112 = 112,112 - 2 = 0;(X) 0; (A) + 5 0;(A) $= \|\Sigma_1\|_F^2 + \sum_{j=1}^d \left[\sigma_j^2(A) - 2 \sigma_j(x) \sigma_j(A) \right]$ complete the square $= \|\Sigma_1\|_F^2 + \sum_{i=1}^{2} \left(\sigma_i(A) - \sigma_i(X)\right)^2 - \sigma_i^2(X)$ This is minimized when $\nabla_i(A) = \sigma_i(x)$ 1=1,..., d emol $I_{\text{mom}} = U_{1}^{T} U_{2}$, i.e. U = U2 $I_{nxn} = V = V_2^T V_1, \quad \text{i.e.} \quad V_1 = V_2.$



Next time: midtern versew.