

Suppose $T \in \mathcal{L}(V)$ and $\lambda \in \mathbb{F}$. Prove that λ is an eigenvalue of T iff $\bar{\lambda}$ is an eigenvalue of T^* .

Given λ is an eigenvalue of T , show that $\bar{\lambda}$ is an eigenvalue of T^* . This will imply both directions, since $\lambda = \overline{\bar{\lambda}}$ and $T = T^{**}$.