1. (Weyl's criterion) Let A be a bounded normal operator on a Hilbert space. Prove that $\lambda \in \sigma(A)$ if and only if there exists $\{\psi_n\}_{n=1}^{\infty}$ so that $\|\psi_n\| = 1$ and $\lim_{n\to\infty} \|(A-\lambda)\psi_n\| = 0$.