1. Let $\kappa$ be a regular uncountable cardinal. Prove that the intersection of two club subsets of $\kappa$ is unbounded. Make sure to cite where you use that the club sets are closed and where you use that they are unbounded.

2. Let $\kappa$ be a regular uncountable cardinal, $\lambda < \kappa$, and $\langle C_\alpha \mid \alpha < \lambda \rangle$ be a sequence of club subsets of $\kappa$. Show $\bigcap_{\alpha < \lambda} C_\alpha$ is unbounded.

3. Let $\kappa$ be a regular, uncountable cardinal and $\langle C_\alpha \mid \alpha < \kappa \rangle$ be a sequence of club subsets of $\kappa$. Show $\Delta_{\alpha < \kappa} C_\alpha$ is also club.

4. Prove Fodor’s Theorem: Let $\kappa$ be a regular uncountable cardinal. If $f$ is a regressive function on a stationary set $S \subseteq \kappa$, then there exist stationary $T \subseteq S$ such that $f$ restricted to $T$ is constant.

5. Let $\kappa \geq \omega_2$ be a regular cardinal and let $F$ be the club filter on $\kappa$. Prove that $F$ cannot be an ultrafilter.