HW13

1. Assume that A & B are compact subspaces of space X. Prove that $A \cup B$ is also compact.

[Grad only]

2. Prove that $\boxed{\text{if}}$ $\mathcal{C}$ is a chain of compact subspaces of a given space X, and, to avoid trivial cases, $\mathcal{C} \neq \emptyset$ and $C \neq \emptyset$ for all $C \in \mathcal{C}$, $\boxed{\text{then}}$ $\bigcap \mathcal{D} \neq \emptyset$ where $\mathcal{D} = \{\overline{C} \mid C \in \mathcal{C}\}$.