ORDERS

1. Let S be an ordered set and let $\emptyset \subsetneq A \subseteq B \subseteq S$. Suppose that A and B both have both an infimum and a supremum. Prove that $\inf B \leq \inf A \leq \sup A \leq \sup B$.

2. Let S be an ordered set and let $A \subseteq S$ be a nonempty and finite. Prove (using induction) that $\inf A$ and $\sup A$ both exist and are both in the set A.

Date: Due January 19, 2022.