

Homework #1

- 1 Let A be a nonempty set of real numbers which is bounded both above and below. Prove that $\inf(A) \leq \sup(A)$.
- 2 Suppose A and B are nonempty sets of real numbers which are both bounded above. Define

$$A + B = \{a + b : a \in A, b \in B\}.$$

Prove that $A + B$ has a least upper bound and that

$$\sup(A + B) = \sup(A) + \sup(B).$$