

Math 4200
Assignment 6

Page 29 : 39, 40, 41

1. Restate the completeness axiom in terms of greatest lower bounds, and prove the equivalence of the two forms.

2. Suppose S is a non-empty set which is bounded below. Show that for each $\varepsilon > 0$, there exists x in S such that $\inf S \leq x < \inf S + \varepsilon$. (This is the back away principle for infimums.)

3. If A and B are bounded sets and $A \subset B$, show that

$\sup A \leq \sup B$ and $\inf A \geq \inf B$.

4. Show that for every positive real number x , there is an n in J such that $0 < \frac{1}{n} < x$.