

Assignment 5

1. Prove l.u.b. axiom $\Leftrightarrow$ g.l.b. axiom

2. Prove $a < b + \epsilon \quad \forall \epsilon > 0 \Rightarrow a \in b$

3. Prove $\exists$ real a s.t. $a^2 = 2$

4. Prove $\forall a \in \mathbb{R}, \forall \epsilon > 0 \exists r \in \mathbb{Q}$ s.t. $|r - a| < \epsilon$

Hence $\exists r_n$ s.t. $r_n \rightarrow a$

5. Prove A bdd above and open $\Rightarrow$ l.u.b. $A \notin A$

6. Prove Nested Int. Th. $\Rightarrow$ l.u.b. axiom.

i.e. if $A \neq \emptyset$ has an upper bound
then A has a l.u.b.