

高微第一週作業

Rudin : p.22 # 4, 5.

Extra problems :

1. Prove that the equation $x^2 = 6$ have no solution in Q .
2. Prove that $A = \{p \in Q^+ \mid p^2 > 3\}$ contains no smallest number.
3. Consider $A = \{p \in Q \mid 0 < p < 1\}$ as a subset in the ordered set Q . Find $\inf A$, if exists.
4. Prove the uniqueness of the least upper bound.
5. Let S be an ordered set with the least upper bound property. Suppose that A and B are bounded subsets (that is, bounded above and below) of S . Show that $\sup(A \cup B) = \max\{\sup A, \sup B\}$. (Note that one has to take care of the existence of the least upper bounded