

담당교수 : 강현배

1. Prove that every nonempty subset of  $\mathbb{R}$  which is bounded above has the least upper bound using the Monotone Sequence Property.
2. Show that every bounded sequence in  $\mathbb{R}$  has a convergent subsequence.
3. Find the accumulation points of the set  $\{(m/n, 1/n) \mid m, n \text{ integers, } n \neq 0\}$ . You have to prove your answer.
4. Suppose that  $u_n > 0$  for  $n = 1, 2, \dots$ . Show that

$$\limsup \sqrt[n]{u_n} \leq \limsup \frac{u_{n+1}}{u_n}.$$