

Homework #7 (Due, September 7)

- Read pp. 14-23 in the textbook.
- For quiz on Friday need to know:
definitions of $\mathbb{R}$, least upper bound, greatest lower bound. Statements of Axiom of Completeness, Lemma 1.3.7, Theorem 1.4.1.

Do the following problems:

1. Prove the following statement:

Let $A \subset \mathbb{R}$ and let ℓ be a lower bound of A ,
then $(\ell = \inf A) \Leftrightarrow (\forall \varepsilon > 0 \exists a \in A \text{ s.t. } \ell + \varepsilon > a)$

2. Let $A = \left\{ \frac{n+1}{n+2}, n \in \mathbb{N} \right\}$.

Find $\sup A$ and prove your answer
by using lemma 1.3.7.

3. Do # 1.3.11 in the textbook.