

Set Theory Homework 4

1. Show (in ordinal arithmetic) that if $0 < \alpha \leq \beta$ then there are δ and $\rho < \alpha$ such that $\beta = \alpha \cdot \delta + \rho$.
2. 3.7.1. (i)
3. 3.7.3 (ii)
4. 3.7.6 (ii)
5. 3.7.6. (iii)
6. Prove that there is no one-one function from $n+1$ to n . *Hint: use induction on n .*
7. Use the Axiom of Choice to show that for any two sets A and B there is an injection $f : A \rightarrow B$ or an injection $g : B \rightarrow A$.