

List of Theorems for Mth 435 Final

Parts of the proofs of the following theorems could appear on the final exam.

1. Theorem 0.7
Equivalence of well-ordering principle, mathematical induction and strong induction.
2. Theorem 1.18
Between any two distinct real numbers, there is a rational and an irrational number.
3. Theorem 1.25
A countable union of countable sets is countable.
4. Theorem 2.10
A bounded monotone sequence is convergent.
5. Theorem 2.13
A sequence of real numbers is convergent if and only if it is Cauchy.
6. Theorem 2.18
Every sequence of real numbers has a monotone subsequence.
7. Theorem 2.19
Bolzano-Weierstraß- A bounded sequence of real numbers has a convergent subsequence (you should know both proofs, that using monotone subsequences and the one in the homework using subdivision).
8. Theorem 3.16
The Intermediate Value Theorem
9. Theorem 3.17
The Extreme Value Theorem
10. Theorem 3.28
 f continuous on $[a, b] \implies f$ uniformly continuous on $[a, b]$.
11. Theorem 4.11
Rolle's Theorem
12. Theorem 4.12
The Mean Value Theorem