ASSIGNMENT 11

Prove:

The Axiom of Choice implies Zorn's Lemma.

Zorn's Lemma implies the Axiom of Choice.

The Axiom of Choice implies the Well Ordering principle.

The Well Ordering Principle implies the Axiom of Choice.

Zorn's Lemma implies the Well Ordering Principle.

The Well Ordering Principle implies Zorn's Lemma.

Given two ordinal numbers α and β show that $\alpha = \beta$ or $\beta \in \alpha$ or $\alpha \in \beta$.

Given two well ordered sets $(A; <)$ and $B; <$ show that there is an order preserving bijection from A to B or from A to an initial segment of B or from B to an initial segment of A.

The Final Exam: Will consist of 10 problems with a weight of 5 points each. Some of the problems will be taken from or be very similar to problems on Assignments 9, 10 and 11. Other problems will ask for definitions of things like ordinals, cardinals, regular and singular cardinals, limit ordinals etc. There will be a very simple question concerning ordinal arithmetic and questions or part of questions related to the definition of real numbers via Cauchy sequences.