

## Math 160A - Winter 2002 - Theorem Proving

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As you will have noticed, our class is now spending a lot of time on theorem proving, and I want to lay out some guidelines for this. It appears that most of you need practice honing theorem proving skills: if nothing else, if you are to understand the proofs presented in lectures by me, or presented in the text book, it is important to know how to read and understand proofs. It does no good for me to present lots of proofs in lecture, if they are not being understood by the class!

In order to read and understand proofs, you really must know how to write proofs. In part this is because proofs in the text and in lecture often skip over small steps that you must fill in for yourself. Also, in order to understand proofs, it is necessary to have the right frame of mind or outlook, in which you critically assess each step of the proof — this outlook can be fostered by critiquing your fellow students' proofs and by discovering and writing your own proofs.

**New course requirements:** Every student must present at least one proof at the blackboard during the quarter. Some, or most, of you may present two. When a proof is being presented, the rest of you are responsible for following the proof, asking questions about the proof, and generally not letting it proceed unless you are convinced it is correct!

This makes course attendance even more important than it already was.

Grading: you not graded individually on your presentations. Instead, I will be evaluating the effort and participation levels of the class as a whole (both the student giving the presentation, and the audience listening to it). In this way, the overall class grade levels can be affected by what should be a *team effort* on the part of the class to practice theorem proving.

I do expect the presented proofs to become more polished and professional as the class progresses. So you should be paying attention to your fellow students' proofs and learning from their mistakes.

This change in the course format will probably mean that we cover less material than I had originally planned, but we certainly can hope to cover it with better understanding.