

INTRODUCTION TO INTERMEDIATE GROUP THEORY

In this section on intermediate group theory, the goal is to introduce you to theorem proving and to construct proofs for some very basic theorems. All of the proofs in this section are fairly easy so that you can more easily learn the art of theorem proving. For each of the theorems we begin with just the statement of what you are required to prove, and in the next file you are given a proof of the theorem. The way to get maximum benefit from these exercises is to use your brain as much as possible. That means that if you don't know how to derive a particular proof, then spend at least a day mulling it over in your mind. Try and figure out what you would need to show to prove the theorem, and fill in as many of the gaps as you can on your own. And then when done, study the proofs I've given. In this way, you will gradually develop your own brain power in this area and become much better at figuring things out.

Before you get into the theorem proving exercises, though, I've also supplied some background material on symbolic logic, set theory, mathematical induction, and other things. You don't have to understand everything in these sections perfectly, but they will help you with the material that follows. And again, the key to success is to turn these things over and over in your mind. Every minute of practice you spend on trying to figure things out on your own will make your mathematical brain stronger!