

Guidelines for Midterm 1

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The exam is designed to test your knowledge of the main results and techniques, and your skill in applying them to problems. In particular, the calculations should be relatively straightforward and the problems will be on the level of the easier homework problems. Some of the problems will deal with calculations, but some will ask you to show some results where you might have to apply your knowledge of the main theorems. Finally, I might ask you to state and/or prove one or more standard theorems we have covered. The exam will be *closed book* (with no calculators, notes or computers), and 80 minutes long (11:05 to 12:25). It will cover material from class up to and including the March 1. You should not expect any problems where you have to use a “trick” which hasn’t come up before in class or homework. However, I may set a question which uses a trick that has been covered in class or on the problem set, or an easy adaptation.

1. You should know the relevant definitions. For instance, you should be able to define gcd, (reduced) residue system, prime or composite number, binomial coefficient, etc.
2. Know the statements of the main theorems, and go over how they were applied to solve problems on homework or in class. For example, the Euclidean algorithm, Euler’s and Fermat’s theorems, Wilson’s theorems, binomial theorem, fundamental theorem of arithmetic.
3. Be able to prove some of the shorter standard results which we covered.
4. Go over the homework and read the solutions (will be put up sometime this weekend). If you solved a problem and your solution was long or messy, I would recommend reading the solutions anyway (there may have been a simpler solution).
5. Do the practice midterm problems, as well as Problem Set 4-1.

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