

Mathematics 243, section 1 – Algebraic Structures  
Information on Exam 1  
September 29, 2003

*General Information*

As announced in class, the first exam this semester will be given Wednesday, October 8. The exam will cover the material we have discussed since the start of the semester, through the material on mathematical induction from class today: Wednesday, October 1. The topics to review are:

- 1) Logical connectives and truth tables
- 2) Quantifiers, negating statements with quantifiers
- 3) Sets, set operations: union, intersection, complement, set difference, Cartesian products and their properties
- 4) Mappings (functions), the domain and range, injectivity and surjectivity
- 5) Binary operations, examples including composition of functions, matrix sums and products.
- 6) Relations (especially equivalence relations)
- 7) Proof by mathematical induction

*Review Problems*

The exam will consist of 4 or 5 problems (each possibly having several parts). The questions will be similar to parts of the following questions from Gilbert and Gilbert:

- 1) Appendix on logic: 16, 24, 26, 50 - 52, 65, 66, 69 - 74
- 2) Section 1.1: 6, 19, 23, 31
- 2) Section 1.2: 10, 11, 24, 25, 26
- 3) Section 1.3: 8, 9, 13 - 16
- 4) Section 1.5: problems like 2, 3, 6, 8
- 5) Section 1.6: 1, 2, 3
- 6) Section 2.2: 3, 5, 28, 32, 37

*Review Session*

I will be happy to run a review session before the exam. Either Monday evening or Tuesday evening are OK.