MHF 2300 Review for Exam 2
The exam will cover chapter 4 (except for section 4.5), 5.1, 5.2, 6.1, 6.2, 6.3, 7.3, and 7.4

I.   Proof Techniques
   a) Proving subset statements ("choose a point" method)
   b) Proof by induction
   c) Proving a function is injective and/or surjective

In each method be able to read a proposition and tell what will be assumed and what must be shown. (Start and end of a Know/Show table)

II.   Sets
   a) Be able to do set operations with specific sets.
   b) Know DeMorgan's laws and the distributive laws for sets.
   c) Be able to prove set relationships with "choose a point" method.

III.   Functions
   a) Be able to write important definitions related to functions using domain-codomain language and give examples of functions satisfying those definitions. Know how to use function notation and be able to use arrow diagrams to illustrate various examples of such functions.
   b) Know the definitions of injection (one-to-one), surjection (onto), and bijection. Be able to give examples and classify given functions.

IV.   Modular Arithmetic
   a) Know the definition of congruence classes modulo n.
   b) Be able to perform the arithmetic operations on congruence classes.

You will be asked to write short proofs using each of the three proof techniques as outline above. They will not require tricks that you haven't seen before. They will follow in a straight forward manner if you write the "know" and the "show" and the definitions correctly and understand the proof techniques listed above in part I. Much of the test will ask shorter questions like "Construct an example of a function $f : \{a, b, c\} \rightarrow \{1, 2, 3\}$ that is not a surjection."

It is important that you review the homework problems from the sections being tested.