Math 307
Review for Midterm Exam #2

The exam will cover the material from the homeworks #4-#7. The best thing you can do to prepare for the exam is to study these homeworks and make sure you know how to do all of the problems. The following is an overview of what we have been talking about for the first four weeks of the course:

(1) Set theory. You should know how to analyze relations (such as being a subset) between sets built using set operations (unions, intersections, complements).

(2) Functions and their properties. You should know definitions of properties of functions (injective, surjective, bijective) and of sets related with functions (image, pre-image). You should be able to prove statements involving functions, their compositions, and set theoretical operations.

(3) Proofs of arithmetic statements. You should know basic definitions and results in Number Theory (congruences, property P etc). You should be able to give proofs of statements involving divisibility and congruences.

(4) Mathematical induction. You should know how to use the Principle of Mathematical Induction for proofs of statements involving natural numbers.