

MATH 310.01 - METHODS OF PROOF

Your first in-class exam will take place on Friday, September 25th, 2009, and will cover material from sections 1.1 - 1.6, 2.1 - 2.10, 3.1 and 3.2. Make sure that you have done all the homework problems that were assigned (not just the ones that were handed in), as these are the types of questions that you can expect to see on the test.

For this exam you need to:

- Be able to describe a set using the roster method and using set-builder notation.
- Know the definitions of set equality, subset, proper subset, union, intersection, complement, set difference, universal set, power set and cardinality.
- Be able to find the union, intersection, complement, set difference, power set and cardinality of given sets.
- Be able to sketch a general Venn diagram for two or three sets representing a certain region.
- Be able to sketch a Venn diagram representing given relationships between sets.
- Be able to find the union or intersection over an indexed family of sets.
- Be able to find a partition of a set, and also be able to determine if a given collection of sets describes a partition.
- Be able to recognize whether or not a given sentence is a statement.
- Know the symbolic form of the logical operators or, and, not, conditional and biconditional.
- Be able to translate between the symbolic and English versions of compound statements.
- Be able to deduce the truth value of a statement given the truth values of related statements.
- Be able to construct a truth table for a compound statement.
- Be able to negate a compound statement involving logical operators, conditionals, and/or quantifiers.
- Know the definitions of tautology and contradiction.
- Be able to show that two statements are logically equivalent using a truth table.
- Be able to show that two statements are logically equivalent using the logical equivalences.
- Be able to find the truth set of an open sentence.
- Know how to interpret the universal and existential quantifiers.
- Know the definitions of odd integer and even integer.
- Be able to construct a trivial proof.
- Be able to construct a vacuous proof.
- Be able to construct a direct proof.