

MATH 310.01 - METHODS OF PROOF

Your third in-class exam will take place on Monday, December 7th, 2009, and will cover material from sections 8.1 - 8.6, and 9.1 - 9.7. 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 identify the domain, codomain and range of a relation.
- Be able to determine (and prove) whether a relation is reflexive, symmetric and/or transitive.
- Be able to determine whether or not a given relation is an equivalence relation.
- Be able to determine the equivalence classes of an equivalence relation.
- Be able to construct an equivalence relation given the equivalence classes.
- Be able to prove results involving relations defined using congruence modulo n .
- Know the definition of the integers modulo n .
- Be able to perform arithmetic on the integers modulo n .
- Be able to prove or disprove whether a given relation is a function.
- Be able to prove or disprove that a function is one-to-one and/or onto.
- Be able to show that a function is bijective.
- Be able to show that a function is well-defined.
- Be able to find the composition of two functions.
- Be able to prove results involving the composition of two functions.
- Be able to find the inverse of a given relation.
- Know the definitions of a permutation and S_n , and be able to find the inverse of a permutation and the composition of two permutations.

Note that you are expected to know any definitions and concepts on which you have already been tested, such as the definitions of odd and even integers and the various methods of proof covered so far.