

This is a partial study sheet for the final exam for MAT 200, lecture 2. All topics covered in the text book “An Introduction to Mathematical Reasoning”, all topics covered in “Course Notes on Geometry”, all topics covered in lecture, and all topics covered in homework assignments are fair game for exam questions. The following is meant as an outline of what material is essential for the exam.

The following is a list of concepts that all students are expected to completely understand and implement.

- Truth table for $P \Rightarrow Q$
- Converse and contrapositive statements
- Proof by contradiction
- The induction principle
- Definitions of functions, injections, surjections, and bijections
- All definitions and axioms from the geometry notes (the statements of all theorems, lemmas, etc. needed for a proof on the exam will be provided)
- Definition of finite sets
- Definition of two sets (finite or infinite) having the same cardinality
- All definitions from the modular arithmetic chapter that were covered

Students are expected to be able to carry out any proof involved in any graded or ungraded exercise from parts I, II, and III from the text. Students are expected to carry out any proof from any graded or ungraded exercise from the geometry notes (with appropriate theorems, lemmas, etc. provided). Students are expected to be able to carry out any computation (without proof) from part V of the textbook.