

**An Invitation to Higher Mathematics**

Math 215, Fall Semester, 2001

Instructor: Steve Hurder

Topics for Hour Exam 2– November 12

[Chapter 7] Definition of Cartesian product of sets.

[Chapter 8] Functions from sets  $A$  to  $B$ ; composition of functions; graph of a function.

[Chapter 9] Injections, surjections and bijections; inverse of a function.

[Chapter 10] Definition of finite and infinite sets; counting finite sets; counting products of finite sets; counting unions of sets; Venn diagrams.

[Chapter 11] Pigeonhole principle; comparing sizes of sets with injections and surjections.

[Chapter 12] Sets of functions; counting sets of functions; counting number of subsets; counting number of permutations; binomial coefficient; binomial theorem.