

Syllabus Math 100A Fall 2003

1. Set theory: Union, intersection, cardinality, finite and infinite sets and mappings. Pages 6-20.
2. Equivalence relations. Pages 20-25.
3. Mathematical Induction. Pages 27-35.
4. Basic properties of the integers: division algorithm, gcd, divisibility. Pages 36-41.
5. The integers modulo n . Pages 48-55.
6. The definition of a monoid and of a group. Pages 80-97.
7. Subgroups. Pages 99-105.
8. Cyclic Groups. Pages 107-114.
9. Group homomorphism and isomorphism (pp.114-127)
10. Cosets and Lagrange's theorem (pp.127-138)
11. Normal subgroups and factor groups (pp.144-161).
12. The isomorphism theorem (pp.161-169).
13. Definition and examples of rings (pp. 189-193).
14. Subrings (pp.194-195).
15. Division rings (pp. 196,197, 205-207 for quaternions).
16. Integral domains and fields. (pp. 203-205).
17. Ideals factor rings and homomorphisms (pp.213-231,236-240)