

MATH 2513-002 Midterm II topics sheet

We cover topics from sections 3.4, 4.1, 4.2, 4.3, 8.1, 8.2 of the textbook and the various class handouts on the least principle, the division algorithm, and elementary number theory.

1. Congruences and modular arithmetic
2. The Division Algorithm and applications
3. Divisors, greatest common divisors, least common multiples
4. The Least Principle and applications
5. Proofs by Induction (ordinary and strong versions)
6. The Euclidean Algorithm and applications
7. Bezout's identity and applications
8. Euclid's lemma
9. The Fundamental Theorem of Arithmetic and applications
10. Euclid's Theorem on infinitely many primes and applications
11. Fermat's Little Theorem and applications
12. Modular exponentiation

I will provide statements of the Least Principle, the Division Algorithm, the Euclidean Algorithm, Bezout's identity, the Fundamental Theorem of Arithmetic, and Fermat's Little Theorem on a sheet attached to the examination.