Math 406 — Exam I Review

1.1. well orders, greatest integer function $[x]$, fractional part $\{x\}$

1.3. induction, strong induction, recursive definitions

1.4. Fibonacci numbers

1.5. divisibility, division algorithm, greatest common divisors (a, b)

3.1. primes, prime factors, relatively prime

3.3. properties of greatest common divisors, including expressing (a, b) as a linear combininations of a and b

3.4. Euclidean Algorithm to find (a, b) and write as a linear combination

3.5. Fundamental Theorem of Arithmetic, prime power factorizations and their applications, least common multiples and their properties, Theorem about roots of polynomials with integer coefficieints

3.7. linear diophantine equations and their solutions

4.1. congruences, residues, least non-negative residues, complete set of residues, modular arithmetic and modular exponentiation