

Algebra Qual Prep: Summer, 2007.

Fields

August 12, 2007

1. Fields
 - (a) Characteristic of a field
 - (b) Finite field
 - (c) Perfect field
2. Field Extensions
 - (a) Field extensions as vector spaces
 - (b) Basis for a field extension
 - (c) Degree of a field extension
 - (d) Separability
 - (e) Normality
 - (f) Theorem of the primitive element
 - (g) Irreducibility test for polynomials over a field
 - (h) Splitting field
 - (i) Cyclotomic field
 - (j) Radical extension
 - (k) Algebraic extensions and algebraic closure
3. Galois Theory
 - (a) Galois extension
 - (b) Galois correspondence
 - (c) Construction of extensions with a given Galois group
 - (d) Solvable Galois groups