Algebra Qualifier

2004

Syllabus

Group Theory (Hungerford Chapter I) Basic defintions and properties Subgroups Cosets Congruences Homomorphisms Normal subgroups Quotient group Homomorphism and Isomorphism theorems Index Finite index Orders of elements and subgroups Finite groups Free groups Ring Theory (Hungerford Chapter III) Basic definitions and properties Integral domains Fields Ideals (left, right, 2 sided) Homomorphism and Isomorphism theorems Commutative rings Localization

Local rings Polynomial rings Polynomials over a field Noetherian rings

Fields and Galois Theory (Hungerford Chapter V)

Algebraic element

Minimal polynomial

Algebraic extension

Finite extension

Correspondence between intermediate fields and subgroups

Galois extension

Fundamental theorem of Galois theory

Separable extension

Splitting field

Linear Algebra

Vector space

Linear Transformation

Definitions and basic properties

Linear independence

Subspace

Span

Basis

Dimension