

INDEX

- abelian group 2
- alternating group 23
- ascending chain condition 123
- automorphism 4
- automorphism, inner 5

- basis for a module 50
- bijection 3

- category 3
- Cayley's Theorem 5
- center of a group 17
- centralizer of a set (subgroup) 17
- chain conditions 123
- characteristic matrix 61
- Chinese Remainder Theorem 35
- class equation 17
- comaximal ideals 35
- commutative ring 31
- commutator of two elements 27
- commutator subgroup 27
- composition series 25
- conjugate subgroup 7
- content of a polynomial 42
- coset 7
- coset, left 7
- coset, right 7
- cycle 21

- derived series 28
- derived subgroup 27
- descending central series 29
- descending chain condition 123
- dimension of a vector space 52
- direct product 10
- direct product of modules 48
- direct sum of modules 48

- division ring 31
- domain 37
- dual module 64

- elementary matrices 56
- endomorphism 4
- equivalent normal series 25
- Euclidean domain 41

- factor group 8
- factor ring 33
- field 31
- First Isomorphism Theorem 8
- fixed point set 18
- free group on a set 11
- free module 50
- functor 12

- Gauss's Lemma 43
- group action on a set 15
- group 2

- Hilbert Basis Theorem 125
- homomorphism of groups 4
- homomorphism of rings 32

- ideal 32
- identify 2
- image of a homomorphism 4
- indeterminate 38
- inductively ordered set 34
- injective 4
- inner automorphism 5
- integral domain 37
- invariant factors 56
- Invariant Factors Theorem 56
- irreducible element 40

- isomorphism theorems for rings 33
- isomorphism 4
- isotropy subgroup 15

- Jordan-Hölder Theorem 26

- kernel of a homomorphism 8

- Lagrange's Theorem 7
- law of composition 1
- linear combination 50
- linear independent subset 50
- linearly ordered set 34

- maximal ideal 33
- module 45
- monoid 3
- monomial 38

- nilpotent group 29
- non-singular matrix 2
- normal extension 73
- normal series 25
- normal subgroup 7
- normalizer of a set (subgroup) 17

- orbit 15
- order ideal 59
- orthogonal group 15

- parity 23
- permutation matrix 56
- PID 40
- polynomial ring 38
- primary component 59
- primary decomposition 59
- primitive polynomial 42
- principal ideal domain 40
- principal ideal 32
- principal ideal ring 32

- product of subsets of a ring 32

- rank of a module 52
- refinement of a normal series 25
- representation of a group 4
- ring 31
- row/column operations 56

- Schreier's Theorem 26
- Second Isomorphism Theorem 10
- semi-direct product 10
- sign of a permutation 22
- simple group 25
- simple ring 33
- skew field 31
- solvable group 28
- spanning set for a module 50
- split sequence 49
- stabilizer of a point 15
- subgroup 4
- subring 32
- surjective 4
- Sylow subgroup 18
- Sylow's Theorem 18
- symmetric group 3

- torsion 53
- torsion free module 53
- torsion module 53
- transcendence basis 105
- transposition 22

- UFD 40
- unique factorization domain 40
- unit in a ring 31
- universal mapping property of polynomial rings 39

- zero divisor 37
- Zorn's Lemma 34