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Nota di contenuto	Frontmatter -- Contents -- List of definitions and notations -- Preface -- Prerequisites from Volumes 1 and 2 -- §93 Nonabelian 2-groups all of whose minimal nonabelian subgroups are metacyclic and have exponent 4 -- §94 Nonabelian 2-groups all of whose minimal nonabelian subgroups are nonmetacyclic and have exponent 4 -- §95 Nonabelian 2-groups of exponent $2e$ which have no minimal nonabelian subgroups of exponent $2e$ -- §96 Groups with at most two conjugate classes of nonnormal subgroups -- §97 p -groups in which some subgroups are generated by elements of order p -- §98 Nonabelian 2-groups all of whose minimal nonabelian subgroups are isomorphic to M_{2n+1} , $n \geq 3$ fixed -- §99 2-groups with sectional rank at most 4 -- §100 2-groups with exactly one maximal subgroup which is neither abelian nor minimal nonabelian -- §101 p -groups G with $p > 2$ and $d(G) = 2$ having exactly one maximal subgroup which is neither abelian nor minimal nonabelian -- §102 p -groups G with $p > 2$ and $d(G) > 2$ having exactly one maximal subgroup which is neither abelian nor minimal nonabelian -- §103 Some results of Jonah and Konvisser -- §104 Degrees of irreducible characters of p -groups associated with

finite algebras -- §105 On some special p -groups -- §106 On maximal subgroups of two-generator 2-groups -- §107 Ranks of maximal subgroups of nonmetacyclic two-generator 2-groups -- §108 p -groups with few conjugate classes of minimal nonabelian subgroups -- §109 On p -groups with metacyclic maximal subgroup without cyclic subgroup of index p -- §110 Equilibrated p -groups -- §111 Characterization of abelian and minimal nonabelian groups -- §112 Non-Dedekindian p -groups all of whose nonnormal subgroups have the same order -- §113 The class of 2-groups in §70 is not bounded -- §114 Further counting theorems -- §115 Finite p -groups all of whose maximal subgroups except one are extraspecial -- §116 Groups covered by few proper subgroups -- §117 2-groups all of whose nonnormal subgroups are either cyclic or of maximal class -- §118 Review of characterizations of p -groups with various minimal nonabelian subgroups -- §119 Review of characterizations of p -groups of maximal class -- §120 Nonabelian 2-groups such that any two distinct minimal nonabelian subgroups have cyclic intersection -- §121 p -groups of breadth 2 -- §122 p -groups all of whose subgroups have normalizers of index at most p -- §123 Subgroups of finite groups generated by all elements in two shortest conjugacy classes -- §124 The number of subgroups of given order in a metacyclic p -group -- §125 p -groups G containing a maximal subgroup H all of whose subgroups are G -invariant -- §126 The existence of p -groups G_1 G such that $\text{Aut}(G_1) \cong \text{Aut}(G)$ -- §127 On 2-groups containing a maximal elementary abelian subgroup of order 4 -- §128 The commutator subgroup of p -groups with the subgroup breadth 1 -- §129 On two-generator 2-groups with exactly one maximal subgroup which is not two-generator -- §130 Soft subgroups of p -groups -- §131 p -groups with a 2-uniserial subgroup of order p -- §132 On centralizers of elements in p -groups -- §133 Class and breadth of a p -group -- §134 On p -groups with maximal elementary abelian subgroup of order p^2 -- §135 Finite p -groups generated by certain minimal nonabelian subgroups -- §136 p -groups in which certain proper nonabelian subgroups are two-generator -- §137 p -groups all of whose proper subgroups have its derived subgroup of order at most p -- §138 p -groups all of whose nonnormal subgroups have the smallest possible normalizer -- §139 p -groups with a noncyclic commutator group all of whose proper subgroups have a cyclic commutator group -- §140 Power automorphisms and the norm of a p -group -- §141 Nonabelian p -groups having exactly one maximal subgroup with a noncyclic center -- §142 Nonabelian p -groups all of whose nonabelian maximal subgroups are either metacyclic or minimal nonabelian -- §143 Alternate proof of the Reinhold Baer theorem on 2-groups with nonabelian norm -- §144 p -groups with small normal closures of all cyclic subgroups -- Appendix 27 Wreathed 2-groups -- Appendix 28 Nilpotent subgroups -- Appendix 29 Intersections of subgroups -- Appendix 30 Thompson's lemmas -- Appendix 31 Nilpotent p' -subgroups of class 2 in $\text{GL}(n, p)$ -- Appendix 32 On abelian subgroups of given exponent and small index -- Appendix 33 On Hadamard 2-groups -- Appendix 34 Isaacs-Passman's theorem on character degrees -- Appendix 35 Groups of Frattini class 2 -- Appendix 36 Hurwitz' theorem on the composition of quadratic forms -- Appendix 37 On generalized Dedekindian groups -- Appendix 38 Some results of Blackburn and Macdonald -- Appendix 39 Some consequences of Frobenius' normal p -complement theorem -- Appendix 40 Varia -- Appendix 41 Nonabelian 2-groups all of whose minimal nonabelian subgroups have cyclic centralizers -- Appendix 42 On lattice isomorphisms of p -groups of maximal class -- Appendix 43 Alternate

proofs of two classical theorems on solvable groups and some related results -- Appendix 44 Some of Freiman's results on finite subsets of groups with small doubling -- Research problems and themes III -- Author index -- Subject index

Sommario/riassunto

This is the third volume of a comprehensive and elementary treatment of finite p -group theory. Topics covered in this volume: impact of minimal nonabelian subgroups on the structure of p -groups, classification of groups all of whose nonnormal subgroups have the same order, degrees of irreducible characters of p -groups associated with finite algebras, groups covered by few proper subgroups, p -groups of element breadth 2 and subgroup breadth 1, exact number of subgroups of given order in a metacyclic p -group, soft subgroups, p -groups with a maximal elementary abelian subgroup of order p^2 , p -groups generated by certain minimal nonabelian subgroups, p -groups in which certain nonabelian subgroups are 2-generator. The book contains many dozens of original exercises (with difficult exercises being solved) and a list of about 900 research problems and themes.
