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5.5 Reduced Pairs; 5.6 Counting Methods; 5.7 Two Examples; 6. Reduced Pairs of Extraspecial Type; 6.1 Nonreal Reduced Pairs; 6.2 Fixed Point Ratios; 6.3 Point Stabilizers of Exponent 2; 6.4 Characteristic 2; 6.5 Extraspecial 3-Groups; 6.6 Extraspecial 2-Groups of Small Order; 6.7 The Remaining Cases; 7. Reduced Pairs of Quasisimple Type; 7.1 Nonreal Reduced Pairs; 7.2 Regular Orbits; 7.3 Covering Numbers, Projective Marks; 7.4 Sporadic Groups; 7.5 Alternating Groups; 7.6 Linear Groups; 7.7 Symplectic Groups; 7.8 Unitary Groups; 7.9 Orthogonal Groups; 7.10 Exceptional Groups
 8. Modules without Real Vectors
 8.1 Some Fixed Point Ratios; 8.2 Tensor Induction of Reduced Pairs; 8.3 Tensor Products of Reduced Pairs; 8.4 The Riese-Schmid Theorem; 8.5 Nonreal Induced Pairs, Wreath Products; 9. Class Numbers of Permutation Groups; 9.1. The Partition Function; 9.2 Preparatory Results; 9.3 The Liebeck-Pyber Theorem; 9.4 Improvements; 10. The Final Stages of the Proof; 10.1 Class Numbers for Nonreal Reduced Pairs; 10.2 Counting Invariant Conjugacy Classes; 10.3 Nonreal Induced Pairs; 10.4 Characteristic 5; 10.5 Summary; 11. Possibilities for $k(GV) = \sum_j j$; 11.1 Preliminaries 11.2 Some Congruences 11.3 Reduced Pairs; 12. Some Consequences for Block Theory; 12.1 Brauer Correspondence; 12.2 Clifford Theory of Blocks; 12.3 Blocks with Normal Defect Groups; 13. The Non-Coprime Situation; Appendix A: Cohomology of Finite Groups; Appendix B: Some Parabolic Subgroups; Appendix C: Weil Characters; Bibliography; List of Symbols; Index

Sommario/riassunto

The $k(GV)$ conjecture claims that the number of conjugacy classes (irreducible characters) of the semidirect product GV is bounded above by the order of V . Here V is a finite vector space and G a subgroup of $GL(V)$ of order prime to that of V . It may be regarded as the special case of Brauer's celebrated $k(B)$ problem dealing with p -blocks B of p -solvable groups (p a prime). Whereas Brauer's problem is still open in its generality, the $k(GV)$ problem has recently been solved, completing the work of a series of aut