1. Record Nr. UNINA9910828903903321

Autore	Dixon John D
Titolo	Permutation Groups [[electronic resource] /] / by John D. Dixon, Brian Mortimer
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 1996
ISBN	1-4612-0731-2
Edizione	[1st ed. 1996.]
Descrizione fisica	1 online resource (XII, 348 p.)
Collana	Graduate Texts in Mathematics, , 0072-5285 ; ; 163
Disciplina	512.66
Soggetti	K-theory K-Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. The Basic Ideas -- 1.1. Symmetry -- 1.2. Symmetric Groups -- 1.3. Group Actions -- 1.4. Orbits and Stabilizers -- 1.5. Blocks and Primitivity -- 1.6. Permutation Representations and Normal Subgroups -- 1.7. Orbits and Fixed Points -- 1.8. Some Examples from the Early History of Permutation Groups -- 1.9. Notes -- 2. Examples and Constructions -- 2.1. Actions on k-tuples and Subsets -- 2.2. Automorphism Groups of Algebraic Structures -- 2.3. Graphs -- 2.4. Relations -- 2.5. Semidirect Products -- 2.6. Wreath Products and Imprimitive Groups -- 2.7. Primitive Wreath Products -- 2.8. Affine and Projective Groups -- 2.9. The Transitive Groups of Degree at Most 7 -- 2.10. Notes -- 3. The Action of a Permutation Group -- 3.1. Introduction -- 3.2. Orbits of the Stabilizer -- 3.3. Minimal Degree and Bases -- 3.4. Frobenius Groups -- 3.5. Permutation Groups Which Contain a Regular Subgroup -- 3.6. Computing in Permutation Groups -- 3.7. Notes -- 4. The Structure of a Primitive Group -- 4.1. Introduction -- 4.2. Centralizers and Normalizers in the Symmetric Group -- 4.3. The Socle -- 4.4. Subnormal Subgroups and Primitive Groups -- 4.5. Constructions of Primitive Groups with Nonregular Socles -- 4.6. Finite Primitive Groups with Nonregular Socles -- 4.7. Primitive Groups with Regular Socles -- 4.8. Applications of the O'Nan-Scott Theorem -- 4.9. Notes -- 5. Bounds on Orders of Permutation Groups -- 5.1. Orders of Elements -- 5.2. Subgroups of Small Index in Finite Alternating and Symmetric Groups -- 5.3. The Order of a Simply

Primitive Group -- 5.4. The Minimal Degree of a 2-transitive Group -- 5.5. The Alternating Group as a Section of a Permutation Group -- 5.6. Bases and Orders of 2-transitive Groups -- 5.7. The Alternating Group as a Section of a Linear Group -- 5.8. Small Subgroups of Sn -- 5.9. Notes -- 6. The Mathieu Groups and Steiner Systems -- 6.1. The Mathieu Groups -- 6.2. Steiner Systems -- 6.3. The Extension of AG2 (3) -- 6.4. The Mathieu Groups M 11 and M12 -- 6.5. The Geometry of PG 2 (4) -- 6.6. The Extension of PG 2 (4) and the Group M 22 -- 6.7. The Mathieu Groups M 23 and M 24 -- 6.8. The Geometry of W24 -- 6.9. Notes -- 7. Multiply Transitive Groups -- 7.1. Introduction -- 7.2. Normal Subgroups -- 7.3. Limits to Multiple Transitivity -- 7.4. Jordan Groups -- 7.5. Transitive Extensions -- 7.6. Sharply k-transitive Groups -- 7.7. The Finite 2-transitive Groups -- 7.8. Notes -- 8. The Structure of the Symmetric Groups -- 8.1. The Normal Structure of Sym (?) -- 8.2. The Automorphisms of Sym(?) -- 8.3. Subgroups of F Sym(?) -- 8.4. Subgroups of Small Index in Sym(?) -- 8.5. Maximal Subgroups of the Symmetric Groups -- 8.6. Notes -- 9. Examples and Applications of Infinite Permutation Groups -- 9.1. The Construction of a Finitely Generated Infinite p-group -- 9.2. Groups Acting on Trees -- 9.3. Highly Transitive Free Subgroups of the Symmetric Group -- 9.4. Homogeneous Groups -- 9.5. Automorphisms of Relational Structures -- 9.6. The Universal Graph -- 9.7. Notes -- Appendix A. Classification of Finite Simple Groups -- Appendix B. The Primitive Permutation Groups of Degree Less than 1000 -- References.

Sommario/riassunto

Permutation Groups form one of the oldest parts of group theory. Through the ubiquity of group actions and the concrete representations which they afford, both finite and infinite permutation groups arise in many parts of mathematics and continue to be a lively topic of research in their own right. The book begins with the basic ideas, standard constructions and important examples in the theory of permutation groups.It then develops the combinatorial and group theoretic structure of primitive groups leading to the proof of the pivotal O'Nan-Scott Theorem which links finite primitive groups with finite simple groups. Special topics covered include the Mathieu groups, multiply transitive groups, and recent work on the subgroups of the infinite symmetric groups. This text can serve as an introduction to permutation groups in a course at the graduate or advanced undergraduate level, or for self- study. It includes many exercises and detailed references to the current literature.