1. Record Nr. UNINA9910300150203321 Autore Monk J. Donald Titolo Cardinal Invariants on Boolean Algebras: Second Revised Edition / / by J. Donald Monk Basel:,: Springer Basel:,: Imprint: Birkhäuser,, 2014 Pubbl/distr/stampa **ISBN** 3-0348-0730-9 [2nd ed. 2014.] Edizione Descrizione fisica 1 online resource (569 pages): illustrations Collana Progress in Mathematics, , 0743-1643; ; 142 Disciplina 511.3 511.324 Soggetti Mathematical logic Algebra Ordered algebraic structures Mathematical Logic and Foundations Order, Lattices, Ordered Algebraic Structures Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Bibliographic Level Mode of Issuance: Monograph Note generali Nota di bibliografia Includes bibliographical references and indexes. Nota di contenuto Introduction -- 1. Special Operations on Boolean Algebras -- 2. Special Classes of Boolean Algebras -- 3. Cellularity -- 4. Depth -- 5. Topological Density -- 6. Pi-Weight -- 7. Length -- 8. Irredundance --9. Cardinality -- 10. Independence -- 11. Pi-Character -- 12. Tightness -- 13. Spread -- 14. Character -- 15. Hereditary Lindelöf Degree -- 16. Hereditary Density -- 17. Incomparability -- 18. Hereditary Cofinality -- 19. Number of Ultrafilters -- 20. Number of Automorphisms -- 21. Number of Endomorphisms -- 22. Number of Ideals -- 23. Number of Subalgebras -- 24. Other Cardinal Functions -- 25. Diagrams -- 26. Examples -- 27. Problems -- References --Symbol Index -- Subject Index -- Name Index. This book is concerned with cardinal number valued functions defined Sommario/riassunto for any Boolean algebra. Examples of such functions are independence, which assigns to each Boolean algebra the supremum of the cardinalities of its free subalgebras, and cellularity, which gives the supremum of cardinalities of sets of pairwise disjoint elements.

Twenty-one such functions are studied in detail, and many more in passing. The questions considered are the behaviour of these functions

under algebraic operations such as products, free products, ultraproducts, and their relationships to one another. Assuming familiarity with only the basics of Boolean algebras and set theory, through simple infinite combinatorics and forcing, the book reviews current knowledge about these functions, giving complete proofs for most facts. A special feature of the book is the attention given to open problems, of which 185 are formulated. Based on Cardinal Functions on Boolean Algebras (1990) and Cardinal Invariants on Boolean Algebras (1996) by the same author, the present work is much larger than either of these. It contains solutions to many of the open problems of the earlier volumes. Among the new topics are continuum cardinals on Boolean algebras, with a lengthy treatment of the reaping number. Diagrams at the end of the book summarize the relationships between the functions for many important classes of Boolean algebras, including interval algebras, tree algebras and superatomic algebras.