1. Record Nr. UNISALENTO991003506889707536

Autore	Wright, Steve
Titolo	Quadratic residues and non-residues [e-book] : selected topics / by Steve Wright
Pubbl/distr/stampa	Cham : Springer, 2016
ISBN	9783319459554 9783319459547
Descrizione fisica	1 online resource (xiii, 292 p. 20 ill.)
Collana	Lecture Notes in Mathematics, 0075-8434 ; 2171
Classificazione	AMS 11A15 LC QA241-247.5
Disciplina	512.7
Soggetti	Commutative algebra Commutative rings Algebra Field theory (Physics) Fourier analysis Convex geometry Discrete geometry Number theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Introduction: Solving the General Quadratic Congruence Modulo a Prime ; Chapter 2. Basic Facts ; Chapter 3. Gauss' Theorema Aureum: the Law of Quadratic Reciprocity ; Chapter 4. Four Interesting Applications of Quadratic Reciprocity ; Chapter 5. The Zeta Function of an Algebraic Number Field and Some Applications ; Chapter 6. Elementary Proofs ; Chapter 7. Dirichlet L-functions and the Distribution of Quadratic Residues ; Chapter 8. Dirichlet's Class-Number Formula ; Chapter 9. Quadratic Residues and Non-residues in Arithmetic Progression ; Chapter 10. Are quadratic residues randomly distributed? ; Bibliography
Sommario/riassunto	This book offers an account of the classical theory of quadratic residues and non-residues with the goal of using that theory as a lens through which to view the development of some of the fundamental

methods employed in modern elementary, algebraic, and analytic number theory. The first three chapters present some basic facts and the history of quadratic residues and non-residues and discuss various proofs of the Law of Quadratic Reciprosity in depth, with an emphasis on the six proofs that Gauss published. The remaining seven chapters explore some interesting applications of the Law of Quadratic Reciprocity, prove some results concerning the distribution and arithmetic structure of quadratic residues and non-residues, provide a detailed proof of Dirichlet's Class-Number Formula, and discuss the question of whether quadratic residues are randomly distributed. The text is a valuable resource for graduate and advanced undergraduate students as well as for mathematicians interested in number theory