1. Record Nr. UNINA9910821090203321

Autore	Venkatachaliengar K
Titolo	Development of elliptic functions according to Ramanujan / / originally by K. Venkatachaliengar ; edited and revised by Shaun Cooper
Pubbl/distr/stampa	Singapore ; ; Hackensack, N.J., : World Scientific, c2012
ISBN	1-280-37754-2 9786613555458 981-4366-46-3
Edizione	[[Rev. ed.].]
Descrizione fisica	1 online resource (185 p.)
Collana	Monographs in number theory, , 1793-8341 ; ; v. 6
Altri autori (Persone)	CooperShaun
Disciplina	515.983
Soggetti	Elliptic functions
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Originally published as a Technical Report 2 by Madurai Kamaraj University in February, 1988.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface; Contents; 1. The Basic Identity; 1.1 Introduction; 1.2 The generalized Ramanujan identity; 1.3 The Weierstrass elliptic function; 1.4 Notes; 2. The Differential Equations of P, Q and R; 2.1 Ramanujan's differential equations; 2.2 Ramanujan's 11 summation formula; 2.3 Ramanujan's transcendentals U2n and V2n; 2.4 The imaginary transformation and Dedekind's eta-function; 2.5 Notes; 3. The Jordan-Kronecker Function; 3.1 The Jordan-Kronecker function; 3.2 The fundamental multiplicative identity; 3.3 Partitions; 3.4 The hypergeometric function 2F1(1/2, 1/2; 1; x): first method 3.5 Notes 4. The Weierstrassian Invariants; 4.1 Halphen's differential equations; 4.2 Jacobi's identities and sums of two and four squares; 4.3 Quadratic transformations; 4.4 The hypergeometric function 2F1(1/2, 1/2; 1; x): second method; 4.5 Notes; 5. The Weierstrassian Invariants, II; 5.1 Parameterizations of Eisenstein series; 5.2 Sums of eight squares and sums of eight triangular numbers; 5.3 Quadratic transformations; 5.4 The hypergeometric function 2F1(1/4, 3/4; 1; x); 5.5 The hypergeometric function 2F1(1/6, 5/6; 1; x); 5.6 The hypergeometric function 2F1(1/3, 2/3; 1; x) 5.7 Notes 6. Development of Elliptic Functions; 6.1 Introduction; 6.2 Jacobian elliptic functions; 6.3 Reciprocals and quotients; 6.4 Derivatives; 6.5 Addition formulas; 6.6 Notes; 7. The Modular Function

; 7.1 Introduction; 7.2 Modular equations; 7.3 Modular equation of degree 3; 7.4 Modular equation of degree 5; 7.5 Modular equation of degree 7; 7.6 Modular equation of degree 11; 7.7 Modular equation of degree 23; 7.8 Notes; Appendix A Singular Moduli; A.1 Notes; Appendix B The Quintuple Product Identity; B.1 Notes; Appendix C Addition Theorem of Elliptic Integrals; Bibliography; Index

Sommario/riassunto

This unique book provides an innovative and efficient approach to elliptic functions, based on the ideas of the great Indian mathematician Srinivasa Ramanujan. The original 1988 monograph of K Venkatachaliengar has been completely revised. Many details, omitted from the original version, have been included, and the book has been made comprehensive by notes at the end of each chapter. The book is for graduate students and researchers in Number Theory and Classical Analysis, as well for scholars and aficionados of Ramanujan's work. It can be read by anyone with some undergraduate knowledge of