

1. Record Nr.	UNINA9910787646803321
Autore	Tzanakis Nikos <1952->
Titolo	Elliptic diophantine equations // by Nikos Tzanakis
Pubbl/distr/stampa	Berlin ; ; Boston : , : Walter de Gruyter, , [2013] ©2013
ISBN	3-11-028114-7
Descrizione fisica	1 online resource (196 p.)
Collana	De Gruyter Series in Discrete Mathematics and Applications ; ; 2
Disciplina	512.7/2
Soggetti	Diophantine equations Elliptic functions
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front matter -- Preface -- Contents -- Chapter 1 Elliptic curves and equations -- Chapter 2 Heights -- Chapter 3 Weierstrass equations over C and R -- Chapter 4 The elliptic logarithm method -- Chapter 5 Linear form for the Weierstrass equation -- Chapter 6 Linear form for the quartic equation -- Chapter 7 Linear form for simultaneous Pell equations -- Chapter 8 Linear form for the general elliptic equation -- Chapter 9 Bound for the coefficients of the linear form -- Chapter 10 Reducing the bound obtained in Chapter 9 -- Chapter 11 S-integer solutions of Weierstrass equations -- List of symbols -- Bibliography -- Index
Sommario/riassunto	This book presents in a unified and concrete way the beautiful and deep mathematics - both theoretical and computational - on which the explicit solution of an elliptic Diophantine equation is based. It collects numerous results and methods that are scattered in the literature. Some results are hidden behind a number of routines in software packages, like Magma and Maple; professional mathematicians very often use these routines just as a black-box, having little idea about the mathematical treasure behind them. Almost 20 years have passed since the first publications on the explicit solution of elliptic Diophantine equations with the use of elliptic logarithms. The "art" of solving this type of equation has now reached its full maturity. The author is one of the main persons that contributed to the development

of this art. The monograph presents a well-balanced combination of a variety of theoretical tools (from Diophantine geometry, algebraic number theory, theory of linear forms in logarithms of various forms - real/complex and p-adic elliptic - and classical complex analysis), clever computational methods and techniques (LLL algorithm and de Weger's reduction technique, AGM algorithm, Zagier's technique for computing elliptic integrals), ready-to-use computer packages. A result is the solution in practice of a large general class of Diophantine equations.

---