

<<数论>>

图书基本信息

书名：<<数论>>

13位ISBN编号：9787510027352

10位ISBN编号：7510027357

出版时间：2010-9

出版人：世界图书出版公司

作者：哈塞

页数：638

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

## &lt;&lt;数论&gt;&gt;

## 内容概要

In spite of the fact that nowadays there are quite a few books on algebraic number theory available to the mathematical community, there seems to be still a strong need for a fundamental work like Hasse's „Zahlentheorie". This impression is corroborated by the great number of inquiries the editor received about the date of appearance of the English translation of Hasse's book. One main reason for the unbroken interest in this book lies probably in its vivid presentation of the divisortheoretic approach to algebraic number theory, an approach which was developed by Hasse's former teacher Hensel and further expanded by Hasse himself. Hasse does not content himself with a mere presentation of the number-theoretic material, but he motivates the basic ideas and questions, comments on them in detail, and points out their connections with neighboring branches of mathematics.

<<数论>>

作者简介

作者：（德国）哈塞（Helmut Hasse）

## 书籍目录

part . the foundations of arithmetic in the rational number field chapter 1. prime decomposition function fields chapter 2. divisibility function fields chapter 3. congruences function fields the theory of finite fields chapter 4. the structure of the residue class ring mod  $m$  and of the reduced residue class group mod  $m$  1. general facts concerning direct products and direct sums 2. direct decomposition of the residue class ring mod  $m$  and of the reduced residue class group mod  $m$  3. the structure of the additive group of the residue class ring mod  $m$  4. on the structure of the residue class ring mod  $p^\mu$  5. the structure of the reduced residue class group mod  $p^\mu$  function fields chapter 5. quadratic residues 1. theory of the characters of a finite abelian group 2. residue class characters and numerical characters mod  $m$  3. the basic facts concerning quadratic residues 4. the quadratic reciprocity law for the legendre symbol 5. the quadratic reciprocity law for the jacobi symbol 6. the quadratic reciprocity law as product formula for the hilbert symbol 7. special cases of dirichlet's theorem on prime numbers in reduced residue classes function field part . the theory of valued fields chapter 6. the fundamental concepts regarding valuations 1. the definition of a valuation; equivalent valuations 2. approximation independence and multiplicative independence of valuations 3. valuations of the prime field 4. value groups and residue class fields function fields chapter 7. arithmetic in a discrete valued field divisors from an ideal-theoretic standpoint chapter 8. the completion of a valued field chapter 9. the completion of a discrete valued field. the  $p$ -adic number fields function fields chapter 10. the isomorphism types of complete discrete valued fields with perfect residue class field 1. the multiplicative residue system in the case of prime characteristic 2. the equal-characteristic case with prime characteristic 3. the multiplicative residue system in the  $p$ -adic number field 4. witt's vector calculus 5. construction of the general  $p$ -adic field 6. the unequal-characteristic case 7. isomorphic residue systems in the case of characteristic 0 8. the isomorphic residue systems for a rational function field 9. the equal-characteristic case with characteristic 0 chapter 11. prolongation of a discrete valuation to a purely transcendental extension chapter 12. prolongation of the valuation of a complete field to a finite algebraic extension 1. the proof of existence 2. the proof of completeness 3. the proof of uniqueness chapter 13. the isomorphism types of complete archimedean valued fields chapter 14. the structure of a finite-algebraic extension of a complete discrete valued field 1. embedding of the arithmetic 2. the totally ramified case 3. the unramified case with perfect residue class field 4. the general case with perfect residue class field 5. the general case with finite residue class field chapter 15. the structure of the multiplicative group of a complete discrete valued field with perfect residue class field of prime characteristic 1. reduction to the one-unit group and its fundamental chain of subgroups 2. the one-unit group as an abelian operator group 3. the field of  $n$ th roots of unity over a  $p$ -adic number field 4. the structure of the one-unit group in the equal-characteristic case with finite residue class field 5. the structure of the one-unit group in the  $p$ -adic case 6. construction of a system of fundamental one-units in the  $p$ -adic case 7. the one-unit group for special  $p$ -adic number fields 8. comparison of the basis representation of the multiplicative group in the  $p$ -adic case and the archimedean case chapter 16. the tamely ramified extension types of a complete discrete valued field with finite residue class field of characteristic  $p$  chapter 17. the exponential function, the logarithm, and powers in a complete non-archimedean valued field of characteristic 0 1. integral power series in one indeterminate over an arbitrary field 2. integral power series in one variable in a complete non-archimedean valued field 3. convergence 4. functional equations and mutual relations 5. the discrete case 6. the equal-characteristic case with characteristic 0 chapter 18. prolongation of the valuation of a non-complete field to a finite-algebraic extension 1. representations of a separable finite-algebraic extension over an arbitrary extension of the ground field 2. the ring extension of a separable finite-algebraic extension by an arbitrary ground field extension, or the tensor product of the two field extensions 3. the characteristic polynomial 4. supplements for inseparable extensions 5. prolongation of a valuation 6. the discrete case 7. the archimedean case part . the foundations of arithmetic in algebraic number fields chapter 19. relations between the complete system of valuations and the arithmetic of the rational number field 1. finiteness properties 2. characterizations in divisibility theory 3. the product formula for valuations 4. the sum formula for the principal parts function fields the automorphisms of a rational function field chapter 20. prolongation of the complete system of valuations to a

# <<数论>>

finite algebraic extension function fields concluding remarks chapter 21. the prime spots of an algebraic number field and their completions function fields chapter 22. decomposition into prime divisors, integrality, and divisibility 1. the canonical homomorphism of the multiplicative group into the divisor group 2. embedding of divisibility theory under a finite-algebraic extension 3. algebraic characterization of integral algebraic numbers 4. quotient representation function fields constant fields, constant extensions chapter 23. congruences 1. ordinary congruence 2. multiplicative congruence function fields chapter 24. the multiples of a divisor 1. field bases 2. the ideal property, ideal bases 3. congruences for integral elements 4. divisors from the ideal-theoretic standpoint 5. further remarks concerning divisors and ideals function fields constant fields for  $p$ . characterization of prime divisors by homomorphisms. decomposition law under an algebraic constant extension the rank of the module of multiples of a divisor chapter 25. differentials and discriminants 1. composition formula for the trace and norm. the divisor trace 2. definition of the different and discriminant 3. theorems on differentials and discriminants in the small 4. the relationship between differentials and discriminants in the small and in the large 5. theorems on differentials and discriminants in the large 6. common inessential discriminant divisors 7. examples function fields the number of first-degree prime divisors in the case of a finite constant field differentials the riemann-roch theorem and its consequences disclosed algebraic function fields chapter 26. quadratic number fields 1. generation in the large and in the small 2. the decomposition law 3. discriminants, integral bases 4. quadratic residue characters of the discriminant of an arbitrary algebraic number field 5. the quadratic number fields as class fields 6. the hilbert symbol as norm symbol 7. the norm theorem 8. a necessary condition for principal divisors. genera chapter 27. cyclotomic fields 1. generation 2. the decomposition law 3. discriminants, integral bases 4. the quadratic number fields as subfields of cyclotomic fields chapter 28. units 1. preliminaries 2. proofs 3. extension 4. examples and applications chapter 29. the class number 1. finiteness of the class number 2. consequences 3. examples and applications function fields chapter 30. approximation theorems and estimates of the discriminant 1. the most general requirements on approximating zero 2. minkowski's lattice-point theorem 3. application to convex bodies within the norm-one hypersurface 4. consequences of the discriminant estimate function fields index of names subject index

## 章节摘录

In this part of the book, we shall treat the arithmetic properties of the rational numbers. These are properties in which the rational integers play a predominant role. There is a point of view in number theory according to which one is primarily interested in questions about the number of integers with specified properties. For example, there is the question of the number of primes or the number of integers  $x$  of a specified algebraic form as a function of  $x$ . In the present book, the point of view that we shall take from the outset is quite different. We shall be interested in the rational numbers as a set of elements on which we can carry out the basic operations of addition, subtraction, multiplication, and division, that is to say, in the field  $P$  of rational numbers, and likewise in the integers as a subset of this field that is closed with respect to the first three of the basic operations mentioned, that is to say, in the integral subdomain of rational integers, of which  $P$  is the quotient field. Our attention will be directed primarily to the question of the structure of these sets and to the description of this structure by its natural invariants (just as in pure geometry we seek to describe the structure of an object in terms of the inner invariants peculiar to it and not in terms of arbitrarily chosen external coordinates).

## <<数论>>

### 编辑推荐

《数论》是由世界图书出版公司出版的。

<<数论>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>