

Contents

K. Lamotke:
Introduction

Part A. From the Natural Numbers, to the Complex Numbers, to the p -Adics

K. Mainzer:
Chapter 1. Natural Numbers, Integers, and Rational Numbers

K. Mainzer:
Chapter 2. Real Numbers

R. Remmert:
Chapter 3. Complex Numbers

R. Remmert:
Chapter 4. The Fundamental Theorem of Algebra

R. Remmert:
Chapter 5. What is π ?

J. Neukirch:
Chapter 6. The p -Adic Numbers

Part B. Real Division Algebras

M. Koecher and R. Remmert:
Introduction

M. Koecher and R. Remmert:
Repertory. Basic Concepts from the Theory of Algebras

M. Koecher and R. Remmert:
Chapter 7. Hamilton's Quaternions

M. Koecher and R. Remmert:
Chapter 8. The Isomorphism Theorems of FROBENIUS, HOPF, and GELFAND-MAZUR

M. Koecher and R. Remmert:
Chapter 9. CAYLEY Numbers or Alternative Division Algebras

M. Koecher and R. Remmert:
Chapter 10. Composition Algebras. HURWITZ's Theorem — Vector-Product-Algebras

F. Hirzebruch:

Chapter 11. Division Algebras and Topology

Part C. Infinitesimals, Games, and Sets

A. Prestel:

Chapter 12. Nonstandard Analysis

H. Hermes:

Chapter 13. Numbers and Games

H.-D. Ebbinghaus:

Chapter 14. Set Theory and Mathematics

Name Index

Subject Index

Portraits of Famous Mathematicians