Contents

- 1. Historical and Logical Development, 3
- 2. Axiomatic of Real Numbers, 11

II Digital Representations of Real Numbers 19

- 1. Decimal and Cantor Expansions, 19
- 2. Continued Fraction Expansion, 30

III Approximation of Real Numbers by Rationals 49

- 1. The Best Approximation, 49
- 2. Universal Law of Approximation, 60
- 3. Approximation of Algebraic Numbers, 64
- 4. Diophantine Approximations, 70

IV Cardinality and Measure of Sets of Real Numbers 81

- 1. Cardinality, 81
- 2. Measure, 91

Index 101