

CONTENTS

PREFACE	PAGE ix
-------------------	------------

PART I

THE ELEMENTS OF SET THEORY

1. THE BASIC LOGICAL CONCEPTS

1.1. Introduction	3
1.2. The logical constants	3
1.3. The use of quantifiers in proofs	13

2. OPERATIONS ON CLASSES

2.1. Classes and composite wholes	16
2.2. Conventions for diagramming class-structure	17
2.3. Elementary operations	22

PART II

THE BERNAYS THEORY OF FINITE CLASSES AND FINITE SETS

FOREWORD	35
--------------------	----

INTRODUCTION

0.1. Pairs, ordered pairs and k-tuplets	36
0.2. Class conditions	38

1. THE BASIS OF THE SYSTEM

1.1. Primitive constants	43
1.2. Initial definitions	44
1.3. The axioms of the system	45
1.4. The classes admitted by AxIII	46

2. THE DEVELOPMENT OF THE SYSTEM: STAGE I

2.1. Stage I theorems	48
2.2. Standard expressions and the class theorem	51

	PAGE
3. THE DEVELOPMENT OF THE SYSTEM: STAGE II	
3.1. Stage II theorems	64
3.2. Fundamental theorems on ordinals	66
4. THE THEORY OF FINITE ORDINALS	
4.1. Finite ordinal number	80
4.2. The Peano axioms as theorems of the system	81
4.3. Iteration	82
4.4. The existence theorem for the function F^n	87
4.5. Addition, multiplication and exponentiation	89
5. THE THEORY OF FINITE CLASSES AND FINITE SETS	
5.1. Preliminary theorems on finite ordinals	91
5.2. Theorems on finite classes and finite sets	99
5.3. Conclusion	101
REFERENCES	103
INDEX.	105

