

# Contents

Preface . . . . .	vii
<b>Part I Character Theory for the Odd Order Theorem</b>	
Introduction . . . . .	1
Notation . . . . .	3
1. Preliminary Results from Character Theory . . . . .	5
2. The Dade Isometry . . . . .	10
3. TI-Subsets with Cyclic Normalizers . . . . .	15
4. The Dade Isometry for a Certain Type of Subgroup . . . . .	21
5. Coherence . . . . .	25
6. Some Coherence Theorems . . . . .	30
7. Non-existence of a Certain Type of Group of Odd Order . . . . .	38
8. Structure of a Minimal Simple Group of Odd Order . . . . .	44
9. On the Maximal Subgroups of $G$ of Types II, III and IV . . . . .	50
10. Maximal Subgroups of Types III, IV and V . . . . .	58
11. Maximal Subgroups of Types III and IV . . . . .	64
12. Maximal Subgroups of Type I . . . . .	69
13. The Subgroups $S$ and $T$ . . . . .	75
14. Non-existence of $G$ . . . . .	87
Notes . . . . .	93
References . . . . .	95

## Part II A Theorem of Suzuki

Introduction . . . . .	97
Notation . . . . .	99
Chapter I. General Properties of $G$ . . . . .	100
1. Consequences of Hypothesis (A1) . . . . .	100
2. The Structure of $Q$ and of $K$ . . . . .	103
3. Application of the Induction Hypothesis . . . . .	104
Chapter II. The First Case . . . . .	108
Chapter III. The Structure of $H$ . . . . .	115
1. The Structure of $Q$ . . . . .	115
2. The Case in which $st$ has Order 5 . . . . .	118
3. The Action of $KW$ on $S$ . . . . .	119
Chapter IV. Characterization of $\text{PSU}(3, q)$ . . . . .	122
1. The Mappings $f, g$ and $h$ . . . . .	122
2. Preliminary Calculation . . . . .	123
3. Determination of $f$ . . . . .	129
4. The Case $V \neq W$ . . . . .	132
Appendix I. A Special Case of a Theorem of Huppert . . . . .	135
Appendix II. On Near-Fields . . . . .	137
Appendix III. On Suzuki 2-Groups . . . . .	139
Appendix IV. The Feit-Sibley Theorem . . . . .	144
References . . . . .	151
<b>Index to Parts I and II</b> . . . . .	<b>153</b>