

## CONTENTS

	<b>Preface</b> .....	vii
	<b>Acknowledgments</b> .....	xi
<b>Chap. 0</b>	<b>Preliminaries</b> .....	1
<b>Chap. I</b>	<b>Solvable subgroups of linear groups</b> .....	27
§ 1	Quasi-primitive linear groups .....	27
§ 2	Semi-linear and small linear groups .....	37
§ 3	Bounds for the order and the derived length of linear groups .....	55
<b>Chap. II</b>	<b>Solvable permutation groups</b> .....	73
§ 4	Orbit sizes of $p$ -groups and the existence of regular orbits .....	73
§ 5	Solvable permutation groups and the existence of regular orbits on the power set .....	84
§ 6	Solvable doubly transitive permutation groups .....	94
§ 7	Regular orbits of Sylow subgroups of solvable linear groups .....	102
§ 8	Short orbits of linear groups of odd order .....	110
<b>Chap. III</b>	<b>Module actions with large centralizers</b> .....	117
§ 9	Sylow centralizers — the imprimitive case .....	117
§ 10	Sylow centralizers — the primitive case .....	126
§ 11	Arithmetically large orbits .....	145

<b>Chap. IV</b>	<b>Prime power divisors of character degrees</b> . . . . .	157
§12	Characters of $p'$ -degree and Brauer's height-zero conjecture . . . . .	157
§13	Brauer characters of $q'$ -degree and Ito's theorem . . . . .	176
§14	The $p$ -part of character degrees . . . . .	186
§15	McKay's conjecture . . . . .	196
<b>Chap. V</b>	<b>Complexity of character degrees</b> . . . . .	210
§16	Derived length and the number of character degrees . . . . .	210
§17	Huppert's $\rho$ - $\sigma$ -conjecture . . . . .	220
§18	The character degree graph . . . . .	227
§19	Coprime group actions and character degrees . . . . .	245
§20	Brauer characters — the modular degree graph . . . . .	259
<b>Chap. VI</b>	<b><math>\pi</math>-special characters</b> . . . . .	265
§21	Factorization and restriction of $\pi$ -special characters . . . . .	265
§22	Some applications — character values and Feit's conjecture . . . . .	272
§23	Lifting Brauer characters and conjectures of Alperin and McKay . . . . .	276
	<b>References</b> . . . . .	293
	<b>Index</b> . . . . .	299