## Contents

Preface to t	he English Edition	vii
Prefaces to	the German Editions	ix
Chapter 1.	Cubic Equations	1
Chapter 2.	Casus Irreducibilis: The Birth of the Complex Numbers	9
Chapter 3.	Biquadratic Equations	23
Chapter 4.	Equations of Degree $n$ and Their Properties	27
The	Fundamental Theorem of Algebra: Plausibility and Proof	32
Chapter 5.	The Search for Additional Solution Formulas	37
Perm	nutations	42
The	Fundamental Theorem on Symmetric Polynomials	47
Ruffini and the General Equation of Fifth Degree		
		V

Chapter 6. Equations That Can	Be Reduced in Degree 55
The Decomposition of Inte	ger Polynomials 57
Eisenstein's Irreducibility (	Criterion 60
Chapter 7. The Construction of	Regular Polygons 63
Constructions with Straigh	tedge and Compass 69
The Classical Construction	Problems 74
Chapter 8. The Solution of Equa	ations of the Fifth Degree 81
The Transformations of Ts Jerrard	chirnhaus and of Bring and 89
Chapter 9. The Galois Group of	an Equation 93
Computing the Galois Gro	up 114
A Quick Course in Calcula	ting with Polynomials 119
Chapter 10. Algebraic Structures	and Galois Theory 125
Groups and Fields	130
The Fundamental Theorem Example	n of Galois Theory: An 144
Artin's Version of the Fun Galois Theory	damental Theorem of 149
The Unsolvability of the C Problems	Classical Construction 161
Epilogue	165
Index	177

vi