## **Contents**

Preface		vii
1	The simplest model	1
	1.1 The phenomenon of discontinuity in solutions	1
	1.2 The Riemann problem	3
	1.3 Interaction of elementary waves	6
	1.4 The case without convexity	14
	1.5 The perturbed Riemann problem	24
	1.6 The Riemann problem for systems of conservation laws	33
2	One-dimensional isothermal flow	38
	2.1 Introduction	38
	2.2 The Riemann problem	40
	2.3 Some simple cases of the interaction of elementary waves	50
	2.4 A special kind of initial-value problem	60
	2.5 Glimm's method	66
	2.6 Another kind of initial-value problem	71
	2.7 The nonconvex case	74
	2.8 Perturbation of the Riemann problem	79
3	One-dimensional adiabatic flow	95
	3.1 Introduction	95
	3.2 The Riemann problem	97
	3.3 The global properties of the curves $R$ and $S$ in the phase	
	space	101
	3.4 The interactions of elementary waves containing no $R$	110
	3.5 The interactions containing R	121
	3.6 The Riemann problem in the nonconvex case	136
	3.7 Entropy admissibility criteria	15
	Dir Directory and the second s	

## vi

## CONTENTS

4	Two-dimensional flow	162
	4.1 Some fundamental concepts	162
	4.2 The Riemann problem for a scalar conservation law	174
	4.3 The overtaking of two shocks in steady flow	222
	4.4 Diffraction of a planar shock along a compressive corner	242
References		261
Αı	Author index	
Su	Subject index	