PROBLEM BOOK

THEORY OF FUNCTIONS

Volume I

Problems in the Elementary Theory of Functions

BY KONRAD KNOPP

Professor of Mathematics, University of Tübingen translated by LIPMAN BERS

CONTENTS

Foreword		vii
	PROBLEMS	ANSWERS
$Chapter\ I$ fundamental concepts		à
§1. Numbers and Points	1	41
§2. Point Sets. Paths. Regions	3	43
Chapter II INFINITE SEQUENCE AND SERIES	ES	
§3. Limits of Sequences. Infinite Series with Constant Terms	te 7	50
§4. Convergence Properties of Pow Series	rer 10	54
Chapter III FUNCTIONS OF A COMPLEX VARIABLE		
§5. Limits of Functions. Continuit and Differentiability	y 14	61
§6. Simple Properties of the Elementary Functions	16	68
Chapter IV INTEGRAL THEORE	MS	
§7. Integration in the Complex Domain	20	79

	PROBLEMS	ANSWERS
§8. Cauchy's Integral Theorems an Integral Formulas	ad 22	85
Chapter V EXPANSION IN SERIE	ES	
§9. Series with Variable Terms. Un form Convergence	i- 25	89
§10. Expansion in Power Series	27	95
§11. Behaviour of Power Series on the Circle of Convergence	ne 30	104
Chapter VI CONFORMAL MAPPI	NG	
§12. Linear Functions. Stereograph Projection	ic 33	110
§13. Simple Non-Linear Mapping Problems	37	118