## **Contents**

		Frame	Page
P	art One. SETS		
1	Sets: Description and Notation		1
	Description and Membership	1	1
	Notation	14	4
	Subsets	<i>56</i>	12
	Set Universes, Number Universes	<b>84</b>	18
	Equivalence and Equality of Sets	100	21
	Self-test I		24
	Summary and Application	<i>108</i>	26
	Review Frames 28, 29, 33, 42, 55, 59, 81, 82, 83, 96, 118, 119, 120, 121, 122, 123, 147, 148		
11	Operations with Sets		36
	Complementation: Venn Diagrams,		
	Partitions, and Disjoint Sets	160	<i>36</i>
	Intersection	170	39
	Union	<i>178</i>	41
	Self-test II		52
	Properties of Operations with Sets:		
	Associative Property, Commuta-		
	tive Property, Distributive Prop-		
	erty, Principle of Duality, De Mor-		
	gan's Law	221	<i>55</i>
	Comparison with Operations of Arithmetic	279	73
	Difference of Two Sets	<i>303</i>	77
	Summary and Application	317	80
	Self-test III		81
	Review Frames 216, 217, 218, 219, 220,		
	244, 245, 246, 247, 256, 277, 278,		
	286, 287, 288, 289, 290, 291		
Ш	Equations and Inequalities		84
	Open Sentences and Solution Sets	318	84
	Graphs of Solution Sets	333	8 <i>6</i>
	Set-builder Notation	<i>338</i>	87
	Properties, Definitions, and Operations		
	for Inequalities	346	8 <b>9</b>
	Absolute Value	<i>393</i>	99

	Frame	Page
Source Dont and Abgaluta Value	452	_
Square Root and Absolute Value Self-test IV	432	109 115
Review Frames 350, 362, 440, 441, 442,		110
448, 449, 450, 451, 470, 471, 472		
IV Cumulative Summary and Applications	473	117
Self-test V		123
Part Two. RELATIONS		
V Relations		125
Ordered Pairs	<i>503</i>	125
Graphs of Ordered Pairs	<i>514</i>	127
Cartesian Product	<i>566</i>	142
Extension of Cartesian Product, $U  imes U  imes U$	<b>60</b> 8	149
Self-test VI		153
Locus: Graphs, Union and Intersection		
of Solution Sets	<i>621</i>	<i>156</i>
Binary Relations: Graphs, Domain,		
Range, Distinct Relations of a Car-		
tesian Product, Relations of Ele-	054	405
mentary Algebra Self-test VII	<i>654</i>	165
Review Frames 536, 537, 582, 603, 604,		185
605, 606, 607, 626, 627, 628, 646,		
647, 648, 649, 650, 651, 652, 653,		
680, 704, 705, 706, 736, 737, 750		
, , , , , , , , , , , , , , , , , , , ,		
Part Three. FUNCTIONS		
VI Functions		187
Description and Representation: Vertical-		
line Test, Definition, Notation	751 700	187
Domain, Range	786	197
Rule of Correspondence, Notation Mapping	800	200
Value of the Function	8 <b>35</b>	206
Composition, Composite Function	878 887	217 219
Self-test VIII	001	219 231
Special Functions: Machine, Postage,		201
Constant, Identity, Bracket	930	235
Inverse Functions and Relations	957	242
Correspondence: One-to-one Correspond-		~~~
ence, Many-to-one, One-to-many	990	251
Self-test IX		256
Review Frames 764, 765, 777, 778, 779,		
780, 847, 848, 916, 917, 950, 951,		
952, 953, 954, 955, 956		

	Contents	Xİİİ
Part Four. GENERAL REVI AND SUMMAR		Page
VII General Review	1009	258
Bibliography		275
Answers to Self-tests		277
Index		298