Contents

1	NUMBER THEORY	
1	Basic Operations on the Integers	3
2	Order Axioms	3
3	Theorems on Division	11
4	Numbers to Different Bases	15
5	The Greatest Common Divisor	22
6	The Least Common Multiple	28
7	The Algebra of Divisors of an Integer	31
8	Prime Integers	34
9	The Number of Divisors of an Integer	42
10	The G.C.D., L.C.M., and Prime Factorization	45
11	A Different Type of Factorization	49
12	Perfect Numbers	54
	ALGEBRAIC SYSTEMS	
13	Clock Arithmetic	63
14	The Algebra of Remainders	70
15	Multiplicative Inverses in R_n	74
16	Linear and Quadratic Equations in R_n	79
17	The Algebra of 2×2 Matrices	86
18	The Multiplicative Inverse of a 2×2 Matrix	94
I_{I}	II probability	
19	Introduction to Probability	103
20	Additional Problems in Probability	112

III PROBABILITY

21 22	Systematic Counting General Formulas in Probability	12 12
	BIBLIOGRAPHY	13
	APPENDIX	13
	ANSWERS	14
	INDEX	16