
Contents

Foreword by Branko Grünbaum	ix
Foreword by Peter D. Johnson, Jr.	x
Foreword by Cecil Rousseau	xi
Preface to the Second Edition	xiii
Preface to the First Edition	xv
1 Language and Some Celebrated Ideas	1
1.1 Streetcar Stories	1
1.2 Language	3
1.3 Arguing by Contradiction	6
1.4 Pigeonhole Principle	8
1.5 Mathematical Induction	12
2 Numbers	19
2.1 Integers	19
2.2 Rational and Irrational Numbers	22
3 Algebra	27
3.1 Proof of Equalities and Inequalities	27
3.2 Equations, Inequalities, Their Systems, and How to Solve Them	33

4	Geometry	45
4.1	Loci	45
4.2	Symmetry and Other Transformations	48
4.3	Proofs in Geometry	54
4.4	Constructions	60
4.5	Computations in Geometry	67
4.6	Maximum and Minimum in Geometry	71
5	Combinatorial Problems	77
5.1	Combinatorics of Existence	77
5.2	How Can Coloring Solve Mathematical Problems?	81
5.3	Combinatorics of Sets	88
5.4	A Problem of Combinatorial Geometry	92
6	Chess 7×7	93
7	Farewell to the Reader	103
	References	105