## Contents

1	The	History of Lotteries	1	
2	<b>The</b> 2.1	Rules $r/s$ Lotteries	<b>7</b> 7	
	2.2	Prize Structures	11	
3	The	Odds	14	
	3.1	Chances, Odds, and Probabilities	14	
	3.2	How Many Years Will It Take to Win?	18	
	3.3	You Can't Beat the Odds!	20	
4	Lear	ning from Prize Payouts	22	
	4.1	The Parimutuel Payout System	22	
	4.2	Examples of Extreme Payouts	24	
	4.3	Seeing Through Scatterplots	31	
5	Foolish Styles of Play			
	5.1	Choosing Arithmetic Progressions	37	
	5.2	Choosing Winning Combinations of Previous Draws	42	
	5.3	Choosing "Hot" and "Cold" Numbers	45	
	5.4	Choosing Outstanding Numbers	47	
	5.5	Choosing Winning Numbers		
		from Other Countries or States	49	
	5.6	Choosing Geometric Patterns	52	
	5.7	Modifying Previous Winning Combinations	55	
	5.8	Playing with Numbers	59	
	5.9	The Too-Large-Numbers Dilemma	62	
	5.10	Foolish Play and Arithmetic Complexity	65	

Contents
----------

6	Quic	k Pick: A Sensible Style of Play	69		
7	Inte	lligent Styles of Play	79		
	7.1	Arithmetic Complexity	81		
	7.2	Sums of Numbers	82		
	7.3	Edge Numbers	86		
	7.4	Cluster Numbers	89		
	7.5	Played Numbers	93		
	7.6	Played Number Combinations	97		
	7.7	A Quick Strategy for Intelligent Play	100		
	7.8	A Regression Strategy for Intelligent Play	102		
	7.9	Answers to Frequently Asked Questions	104		
8	Mat	hematical Appendix	106		
	8.1	Probabilities of Winning	106		
	8.2	Frequencies of Winning Numbers	110		
	8.3	Testing Equiprobability of Lotto Numbers	114		
	8.4	First Repetition of a Winning Combination	116		
	8.5	Waiting Time to Exhaust Lotto Numbers	118		
	8.6	Record Waiting Times	122		
	8.7	The Distribution of Spaces on Lottery Tickets	125		
	8.8	The Sum of Winning Numbers	127		
	8.9	A Measure of Arithmetic Complexity	128		
	8.10	The Correlation Coefficient	130		
	8.11	Multiple Linear Regression	131		
	8.12	Some Standard Distributions	132		
	8.13	Mathematical Aspects of Quick-Pick Play	135		
	8.14	The Natural Logarithm	137		
	8.15	An Urn Model Reflecting Number Popularity	138		
	8.16	A Lotto Random Number Generator	140		
R	References				
In	Index				