CONTENTS 5

Phase 2: Distinct-degree factorization	
Quadratic Equations in Two Variables	
Primality Testing: Before 2002	55
	55 56
Fibonacci and Lucas pseudoprimality tests	57
The Miller-Rabin Test Analysis of time complexity Analysis of correctness probability	59
The Integer Factoring Problem	61
Trial Division and Fermat's Method	61 61
Primality Testing: The AKS algorithm	67
The Algorithm	67
Correctness	68
	Phase 3: Finding irreducible factors of degree i Quadratic Equations in Two Variables Primality Testing: Before 2002 Fermat and Mersenne primes Primes of the form 2 ⁿ + 1 Primes of the form 2 ⁿ - 1 Testing Fermat's little theorem Fibonacci and Lucas pseudoprimality tests The Miller-Rabin Test Analysis of time complexity Analysis of correctness probability The Integer Factoring Problem Trial Division and Fermat's Method Pollard rho Algorithm Dixon's Algorithm Primality Testing: The AKS algorithm A Polynomial Identity The Algorithm Running Time: Correctness