## **CONTENTS**

	1.1	Preliminary Concepts	•
		Numbers and Numerals	4
	1.3	Axioms of Equality and Order; Number Line	7
		Sums	12
	1.5	Products	17
		The Distributive Law	2
		Consequences of the Axioms	2
		Inverse Operations	28
		Factoring	3
		Order of Operations; Numerical Evaluation	3:
		Equations and Inequalities	30
		Chapter Summary	38
		Chapter Review	40
		·	
2.	The	Set of Integers	4!
	2.1	Some Properties of Integers	4!
	2.2	Sums	50
			V

1. The Set of Whole Numbers

3.1 Forms of Products 3.2 Definitions 7.3.2 Sums and Differences 7.3.3 Sums and Differences 7.3.4 Products of Monomials 8.5 Products of Polynomials 8.6 Factored Forms 9.7 Factoring Trinomials—I 9.7 Factoring Trinomials—II 9.8 Special Products and Factors Chapter Summary Chapter Review 100  4. Rational Expressions 100  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 110  4.3 Reducing Rational Expressions 111  4.4 Quotients of Monomials 112  4.5 Quotients of Polynomials 113  4.6 Building Rational Expressions 124  4.7 Powers with Integral Exponents 125  4.8 Scientific Notation Chapter Summary Chapter Review 136  5.1 Sums 137		2.3 2.4 2.5 2.6	Products and Quotients Order of Operations; Numerical Evaluation	54 57 63 65 66
3.2 Definitions  3.3 Sums and Differences  3.4 Products of Monomials  3.5 Products of Polynomials  3.6 Factored Forms  3.7 Factoring Trinomials—I  3.8 Factoring Trinomials—II  3.9 Special Products and Factors Chapter Summary Chapter Review  4.1 An Extension of the Set of Integers  4.2 Some Properties of Rational Numbers  4.3 Reducing Rational Expressions  4.4 Quotients of Monomials  4.5 Quotients of Polynomials  4.6 Building Rational Expressions  4.7 Powers with Integral Exponents  4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions  13  5.1 Sums	3.	Pol	ynomials	71
3.3 Sums and Differences 3.4 Products of Monomials 3.5 Products of Polynomials 3.6 Factored Forms 3.7 Factoring Trinomials—I 3.8 Factoring Trinomials—II 3.9 Special Products and Factors Chapter Summary Chapter Review  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 4.3 Reducing Rational Expressions 4.4 Quotients of Monomials 4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions 133 5.1 Sums  77 78 78 79 79 70 70 71 71 72 73 74 75 75 76 76 77 77 77 77 77 78 78 78 79 77 77 78 78 78 78 78 78 78 78 78 78 78				71
3.4 Products of Monomials 3.5 Products of Polynomials 3.6 Factored Forms 3.7 Factoring Trinomials—I 3.8 Factoring Trinomials—II 3.9 Special Products and Factors Chapter Summary Chapter Review  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 4.3 Reducing Rational Expressions 4.4 Quotients of Monomials 4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions 133 5.1 Sums  136 137			· · · -	75
3.5 Products of Polynomials 3.6 Factored Forms 9.7 Factoring Trinomials—I 9.8 Factoring Trinomials—II 9.9 Special Products and Factors Chapter Summary Chapter Review 10.6  4. Rational Expressions 10.7  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 4.3 Reducing Rational Expressions 11.6 4.4 Quotients of Monomials 11.6 Quotients of Polynomials 11.6 Building Rational Expressions 12.7 Powers with Integral Exponents 12.8 Scientific Notation 12.9 Chapter Summary 13.0 Chapter Summary 13.0 Chapter Review 13.1 Sums 13.3  5.1 Sums 13.3				79
3.6 Factored Forms 3.7 Factoring Trinomials—I 3.8 Factoring Trinomials—II 3.9 Special Products and Factors Chapter Summary Chapter Review 103  4. Rational Expressions 104  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 4.3 Reducing Rational Expressions 114  4.4 Quotients of Monomials 115  4.5 Quotients of Polynomials 126  4.6 Building Rational Expressions 127  4.7 Powers with Integral Exponents 128  4.8 Scientific Notation Chapter Summary Chapter Review 130  5. Operations on Rational Expressions 131  5.1 Sums 133				84
3.7 Factoring Trinomials—II 99 3.8 Factoring Trinomials—III 99 3.9 Special Products and Factors 99 Chapter Summary 100 Chapter Review 100  4. Rational Expressions 109  4.1 An Extension of the Set of Integers 109 4.2 Some Properties of Rational Numbers 119 4.3 Reducing Rational Expressions 119 4.4 Quotients of Monomials 119 4.5 Quotients of Polynomials 119 4.6 Building Rational Expressions 129 4.7 Powers with Integral Exponents 120 4.8 Scientific Notation 120 Chapter Summary 130 Chapter Review 130  5. Operations on Rational Expressions 131  5.1 Sums 131				86
3.8 Factoring Trinomials—II 3.9 Special Products and Factors Chapter Summary Chapter Review 10:  4. Rational Expressions 10:  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 11: 4.3 Reducing Rational Expressions 11: 4.4 Quotients of Monomials 11: 4.5 Quotients of Polynomials 12: 4.6 Building Rational Expressions 12: 4.7 Powers with Integral Exponents 12: 4.8 Scientific Notation Chapter Summary Chapter Review 13:  5. Operations on Rational Expressions 13: 5.1 Sums				91
3.9 Special Products and Factors Chapter Summary Chapter Review  4. Rational Expressions  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 4.3 Reducing Rational Expressions 4.4 Quotients of Monomials 4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions 133  5.1 Sums			——————————————————————————————————————	93
Chapter Summary Chapter Review  4. Rational Expressions  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 4.3 Reducing Rational Expressions 4.4 Quotients of Monomials 4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions 133  5.1 Sums				
Chapter Review  4. Rational Expressions  4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 4.3 Reducing Rational Expressions 4.4 Quotients of Monomials 4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions 133  5.1 Sums		3.3	•	
4.1 An Extension of the Set of Integers 4.2 Some Properties of Rational Numbers 110 4.3 Reducing Rational Expressions 111 4.4 Quotients of Monomials 112 4.5 Quotients of Polynomials 113 4.6 Building Rational Expressions 129 4.7 Powers with Integral Exponents 120 4.8 Scientific Notation 121 Chapter Summary 132 Chapter Review 134  5.1 Sums 136			•	103
4.2 Some Properties of Rational Numbers 4.3 Reducing Rational Expressions 4.4 Quotients of Monomials 4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions 133 5.1 Sums	4.	Rat	tional Expressions	105
4.3 Reducing Rational Expressions 4.4 Quotients of Monomials 4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions 133 5.1 Sums		4.1	An Extension of the Set of Integers	105
4.4 Quotients of Monomials 4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions  133  5.1 Sums		4.2	Some Properties of Rational Numbers	110
4.5 Quotients of Polynomials 4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review 134  5. Operations on Rational Expressions 137  5.1 Sums		4.3		115
4.6 Building Rational Expressions 4.7 Powers with Integral Exponents 4.8 Scientific Notation Chapter Summary Chapter Review 134  5. Operations on Rational Expressions 137  5.1 Sums		4.4		119
4.7 Powers with Integral Exponents 4.8 Scientific Notation 129 Chapter Summary 130 Chapter Review 134  5. Operations on Rational Expressions 137  5.1 Sums				121
4.8 Scientific Notation Chapter Summary Chapter Review  5. Operations on Rational Expressions 133 5.1 Sums			•	125
Chapter Summary Chapter Review 133 Chapter Review 134  5. Operations on Rational Expressions 137  5.1 Sums 138				127
Chapter Review 134  5. Operations on Rational Expressions 133  5.1 Sums 136		4.8		129
5. Operations on Rational Expressions  5.1 Sums  13				
5.1 Sums 13			Chapter Review	134
10.	5.	Ope	erations on Rational Expressions	137
10.		5.1	Sums	137
				144

			CONTENTS	i ix
	5.3	Products		149
•	5.4	Quotients		153
	5.5	Complex Fractions		157
		Chapter Summary		160
		Chapter Review		161
6.	Firs	t-Degree Equations and Inequalities—		
	One		163	
	6.1	Equations		163
	6.2	Equivalent Equations—I		165
	6.3	Equivalent Equations—II		170
	6.4	Solution of Inequalities		174
	6.5	Mathematical Models for Word Problems		178
	6.6	Word Problems Concerning Numbers		182
	6.7 6.8	Word Problems Concerning Physical Quantities		186
	0.0	Ratio and Proportion; Metric Measurement Chapter Summary		195 199
		Chapter Review		200
7.	The	Set of Real Numbers		203
	7.1	Radical Notation		203
	7.2	The Set of Irrational Numbers		206
	7.3	Some Properties of Real Numbers		209
	7.4	Properties of Radicals		214
	7.5	Sums and Differences of Radical Expressions		218
	7.6	Products and Quotients of Radical Expressions		221
		Chapter Summary		224
		Chapter Review		225
8.	Sec	ond-Degree Equations		229
	8.1	Solution by Factoring		229
	8.2	Solution by Extraction of Roots		233
	8.3	Complex Numbers		235
	8.4	Solution by Completing the Square		239
	8.5	Solution by the Quadratic Formula		243

8.6 Word Problems Chapter Summary Chapter Review		247 252 253	
9. Relations, Functions,	and Their Graphs	255	
9.1 Solutions of Equation 9.2 Relations 9.3 Functions 9.4 Function Notation 9.5 Graph of a Function; 9.6 Graphing Using Inter 9.7 Special Cases of Line 9.8 Special Property of L 9.9 Graphs of Inequalitie 9.10 The Quadratic Function Chapter Summary Chapter Review	; Linear Functions rcepts ear Equations Linear Functions es in Two Variables	255 260 263 267 269 273 276 280 283 287 291 293	
10. Systems of Linear Equations			
<ul><li>10.2 Independent, Inco</li><li>10.3 Solving Systems I</li><li>10.4 Solving Systems I</li></ul>	by Linear Combinations Ising Two Variables	297 301 305 307 311 320 321	
Cumulative Review		323	
Answers		331	
Index		383	
Conversion Tables			