

Table of Contents

Preface iii
Dedication v

Chapter 1

Functions 1

Unit 1.1: Basic Concepts of Functions 2
Unit 1.2: Basic Functions 5
Unit 1.3: Piecewise Function 9
Unit 1.4: Algebra of Functions 11
Unit 1.5: Composite Functions 13
Unit Exercises 16
Chapter 1 Review Problems 27

Chapter 2

Rational Functions 29

Unit 2.1: Basic Concepts of Rational Functions 30
Unit 2.2: Asymptotes of Rational Functions 31
Unit 2.3: Graphing Rational Functions 36
Unit 2.4: Solving Rational Equations and Inequalities 40
Unit 2.5: Application on Rational Functions 45
Unit Exercises 49
Chapter 2 Review Problems 57

Chapter 3

Inverse Functions 59

Unit 3.1: One-to-One Function 60
Unit 3.2: Inverse of a One-to-One Function 61
Unit Exercises 67
Chapter 3 Review Problems 73

Chapter 4

Exponential and Logarithmic Functions 75

Unit 4.1: Exponential Functions 76
Unit 4.2: Exponential Equations and Inequalities 81
Unit 4.3: Application on Exponential Functions 85
Unit 4.4: Logarithmic Functions 88
Unit 4.5: Properties of Logarithms 89
Unit 4.6: Logarithmic Equations and Inequalities 90
Unit 4.7: Application on Logarithmic Functions 95
Unit Exercises 99
Chapter 4 Review Problems 109

Chapter 5

Simple and Compound Interests 111

- Unit 5.1: Introduction on Loans and Credits 112
- Unit 5.2: Basic Concepts on Simple Interest 112
- Unit 5.3: Determining the Time Period 113
- Unit 5.4: Computing Simple Interest Problem 119
- Unit 5.5: Basic Concepts on Compound Interest 125
- Unit 5.6: Computing Compound Interest Problem 127
- Unit 5.7: Comparison between Nominal and Effective Rates 131
- Unit Exercises 135
- Chapter 5 Review Problems 157

Chapter 6

Simple and General Annuities 159

- Unit 6.1: Basic Concepts of Annuity 160
- Unit 6.2: Simple Ordinary Annuity 160
- Unit 6.3: General Annuity 168
- Unit 6.4: Deferred Annuity 174
- Unit Exercises 179
- Chapter 6 Review Problems 191

Chapter 7

Stocks and Bonds 193

- Unit 7.1: Basic Concepts of Stocks and Bonds 194
- Unit 7.2: Dividends on Preferred and Common Stocks 194
- Unit 7.3: Stock Valuation 197
- Unit 7.4: Bond Valuation 201
- Unit Exercises 205
- Chapter 7 Review Problems 212

Chapter 8

Business and Consumer Loans 213

- Unit 8.1: Basic Concepts of Business and Consumer Loans 214
- Unit 8.2: Charge Account Interest 215
- Unit 8.3: Annual Percentage Rate 217
- Unit 8.4: Rule of 78 / Sum-of-the-Digits Method 218
- Unit 8.5: Amortization 220
- Unit Exercises 225
- Chapter 8 Review Problems 235

Chapter 9

Logic 233

- Unit 9.1: Basic Concepts 234
- Unit 9.2: Operations on Propositions 235
- Unit 9.3: Truth Values of Propositions 238
- Unit 9.4: Forms of Conditional Propositions 239
- Unit 9.5: Tautology, Contradiction and Contingencies 240
- Unit 9.6: Logical Equivalence 241
- Unit 9.7: Rules of Inference 243
- Unit 9.8: Logical Fallacies 246
- Unit Exercises 249
- Chapter 9 Review Problems 260

Chapter 10

Method of Proofs 263

- Unit 10.1: Basic Concepts 264
- Unit 10.2: Methods of Proofs 265
- Unit Exercises 275
- Chapter 10 Review Problems 287