



# INTERMEDIATE ALGEBRA

## VIDEO LIBRARY OUTLINE

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## VIDEO LIBRARY OVERVIEW

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## CHAPTER 1 - FOUNDATIONS

### 1.1 Use the Language of Algebra (Part 1)

Topics:

- A. Find factors, prime factorizations, and least common multiples (LCM) (7 – 17 odd)
- B. Simplify expressions using order of operations (19 – 29 odd)

**Suggested Homework Exercises: 7 – 29 odd**

### 1.1 Use the Language of Algebra (Part 2)

Topics:

- C. Evaluate an expression (31 – 35 odd)
- D. Identify and combine like terms (37 – 41 odd)
- E. Translate words to math notation (43 – 53 odd)

**Suggested Homework Exercises: 31 – 53 odd**

### 1.2 Integers

Topics:

- A. Simplify expressions with absolute value (59 – 69 odd)
- B. Operations with integers (71 – 97 odd)
- C. Evaluate variable expressions with integers (99 – 125 odd)
- D. Use integers in applications (127 – 137 odd)

**Suggested Homework Exercises: 59 – 137 odd**

### 1.3 Fractions (Part 1)

Topics:

- A. Simplify fractions (143 – 149 odd)
- B. Multiply and divide fractions (151 – 171 odd)

**Suggested Homework Exercises: 143 – 171 odd**

### 1.3 Fractions (Part 2)

Topics:

- C. Add and subtract fractions (173 – 191 odd)
- D. Use order of operations to simplify fractions (193 – 227 odd)
- E. Evaluate variable expressions with fractions (229 – 233 odd)

**Suggested Homework Exercises: 173 – 233 odd**

### 1.4 Decimals

Topics:

- A. Operations with decimals (239 – 273 odd)
- B. Convert decimals, fractions, and percents (275 – 289 odd)
- C. Simplify expressions with square roots (291 – 295 odd)
- D. Sets within the real number system (297 – 307 odd)

**Suggested Homework Exercises: 239 – 307 odd**





### 1.5 Properties of Real Numbers

Topics:

- A. Commutative and Associative Properties (313 – 327 odd)
- B. The Properties of Identity, Inverse, and Zero (329 – 341 odd)
- C. The Distributive Property (343 – 379 odd)

**Suggested Homework Exercises: 313 – 379 odd**

## CHAPTER 2 – SOLVING LINEAR EQUATIONS

### 2.1 Use a General Strategy to Solve Linear Equations (Part 1)

Topics:

- A. Properties of equality (1, 3)
- B. Solving linear equations (5 – 29 odd)

**Suggested Homework Exercises: 1 – 29 odd**

### 2.1 Use a General Strategy to Solve Linear Equations (Part 2)

Topics:

- C. Special cases - three solution types (31 – 41 odd)
- D. Solve linear equations with fractions or decimals (43 – 71 odd)

**Suggested Homework Exercises: 31 – 71 odd**

### 2.2 Use a Problem-Solving Strategy (Part 1)

Topics:

- A. Solve number word problems (81 – 115 odd)
- B. Solve percent problems (117 - 129 odd)

**Suggested Homework Exercises: 81 – 129 odd**

### 2.2 Use a Problem-Solving Strategy (Part 2)

Topics:

- C. Solve percent change problems (131 – 141 odd)
- D. Solve discount and markup problems (143, 145)
- E. Solve simple interest applications (147 – 157 odd)

**Suggested Homework Exercises: 131 – 157 odd**

### 2.3 Solve a Formula for a Specific Variable

Topics:

- A. Solve a formula for a specific variable (165 – 193 odd)
- B. Use formulas to solve geometry applications (195 – 233 odd)

**Suggested Homework Exercises: 165 – 233 odd**

### 2.4 Solve Mixture and Uniform Motion Applications (Part 1)

Topics:

- A. Solve coin word problems (243 – 249 odd)
- B. Solve ticket and stamp word problems (251 – 259 odd)

**Suggested Homework Exercises: 243 – 259 odd**



**2.4 Solve Mixture and Uniform Motion Applications (Part 2)**

Topics:

C. Solve mixture word problems (261 – 267 odd)

D. Solve uniform motion applications (269 – 289 odd)

**Suggested Homework Exercises: 261 – 289 odd****2.5 Solve Linear Inequalities (Part 1)**

Topics:

A. Interval notation and graphing inequalities on a number line (297 – 303 odd)

B. Solve linear inequalities (305 – 337 odd)

**Suggested Homework Exercises: 297 – 337 odd****2.5 Solve Linear Inequalities (Part 2)**

Topics:

C. Solve applications with linear inequalities (339 – 367 odd)

**Suggested Homework Exercises: 339 – 367 odd****2.6 Solve Compound Inequalities**

Topics:

A. Solve compound inequalities with the word “and” (377 – 401 odd)

B. Solve compound inequalities with the word “or” (403 – 425 odd)

C. Solve applications with compound inequalities (427, 429)

**Suggested Homework Exercises: 377 – 429 odd****2.7 Solve Absolute Value Inequalities (Part 1)**

Topics:

A. Solve absolute value equations (435 – 455 odd)

B. Solve absolute value inequalities with “less than” (457 – 467 odd)

**Suggested Homework Exercises: 435 – 467 odd****2.7 Solve Absolute Value Inequalities (Part 2)**

Topics:

C. Solve absolute value inequalities with “greater than” (469 – 479 odd)

D. Solve mixed practice problems (481 – 489 odd)

E. Solve applications with absolute value (491, 493)

**Suggested Homework Exercises: 469 – 493 odd**



## CHAPTER 3 – GRAPHS AND FUNCTIONS

### 3.1 Graph Linear Equations in Two Variables

Topics:

- A. Plot points in the rectangular coordinate system (1 – 7 odd)
- B. Graph by plotting points (9 – 23 odd)
- C. Graph vertical and horizontal lines (25 – 31 odd)
- D. Graph a line using the x and y-intercepts (33 – 67 odd)

**Suggested Homework Exercises: 1 – 67 odd**

### 3.2 Slope of a Line (Part 1)

Topics:

- A. Find the slope of a line (73 – 91 odd)
- B. Graph a line given a point and a slope (93 – 99 odd)
- C. Graph a line using its slope and y-intercept (101 – 115 odd)

**Suggested Homework Exercises: 73 – 115 odd**

### 3.2 Slope of a Line (Part 2)

Topics:

- D. Choose the most convenient method to graph a line (117 – 123 odd)
- E. Graph and interpret applications of slope-intercept (125 – 131 odd)
- F. Use slopes to identify parallel and perpendicular lines (133 – 149 odd)

**Suggested Homework Exercises: 117 – 149 odd**

### 3.3 Find the Equation of a Line

Topics:

- A. Find an equation of a line given the slope and y-intercept (155 – 169 odd)
- B. Find an equation of a line given the slope and a point (171 – 181 odd)
- C. Find an equation of a line given two points (183 – 193 odd)
- D. Find an equation of a line parallel to a given line (195 – 201 odd)
- E. Find an equation of a line perpendicular to a given line (203 – 233 odd)

**Suggested Homework Exercises: 155 – 233 odd**

### 3.4 Graph Linear Inequalities in Two Variables

Topics:

- A. Verify solutions to an inequality in two variables (237 – 241 odd)
- B. Recognize the relationship between the solutions of an inequality and its graph (243 – 249 odd)
- C. Graph linear inequalities (251 – 275 odd)
- D. Solve applications using linear inequalities in two variables (277, 279)

**Suggested Homework Exercises: 237 – 279 odd**







### 3.5 Relations and Functions

Topics:

- A. Find the domain and range of a relation (283 – 293 odd)
- B. Determine if a relation is a function (295 – 305 odd)
- C. Find the value of a function (307 – 327 odd)
- D. Applications involving functions (329, 331)

**Suggested Homework Exercises: 283 – 331 odd**

### 3.6 Graphs of Functions (Part 1)

\* Note: Topics for this section are presented in the reverse order in which they are presented in the OpenStax textbook.

Topics:

- A. Read information from the graph of a function (377 – 385 odd)

**Suggested Homework Exercises: 377 – 385 odd**

### 3.6 Graphs of Functions (Part 2)

Topics:

- B. The vertical line test (337, 339)
- C. Identify graphs of basic functions (341 – 375 odd)

**Suggested Homework Exercises: 337 – 375 odd**

## CHAPTER 4 – SYSTEMS OF LINEAR EQUATIONS

### 4.1 Solve Systems of Linear Equations with Two Variables (Part 1)

Topics:

- A. Determine whether an ordered pair is a solution to a system of equations (1, 3)
- B. Solve a system of equations by graphing (5 – 29 odd)
- C. Solve a system of equations by substitution (31 – 45 odd)

**Suggested Homework Exercises: 1 – 45 odd**

### 4.1 Solve Systems of Linear Equations with Two Variables (Part 2)

Topics:

- D. Solve a system of equations by elimination (47 – 63 odd)
- E. Choose the most convenient method to solve a system of equations (65, 67)

**Suggested Homework Exercises: 47 – 67 odd**

### 4.2 Solve Applications with Systems of Equations (Part 1)

Topics:

- A. Solve direct translation applications (73 – 95 odd)
- B. Solve geometry applications (97 – 111 odd)

**Suggested Homework Exercises: 73 – 111 odd**





#### 4.2 Solve Applications with Systems of Equations (Part 2)

Topics:

C. Solve uniform motion applications (113 – 123 odd)

**Suggested Homework Exercises: 113 – 123 odd**

#### 4.3 Solve Mixture Applications with Systems of Equations (Part 1)

Topics:

A. Solve mixture applications (127 – 149 odd)

**Suggested Homework Exercises: 127 – 149 odd**

#### 4.3 Solve Mixture Applications with Systems of Equations (Part 2)

Topics:

B. Solve interest applications (151 – 157 odd)

C. Solve applications of cost and revenue functions (159)

**Suggested Homework Exercises: 151 – 159 odd**

#### 4.4 Solve Systems of Equations with Three Variables (Part 1)

Topics:

A. Determine whether an ordered triple is a solution to a system of three equations in three variables (163, 165)

B. Solve a system of linear equations in three variables (167 – 181 odd)

**Suggested Homework Exercises: 163 – 181 odd**

#### 4.4 Solve Systems of Equations with Three Variables (Part 2)

Topics:

B. Solve a system of linear equations in three variables (continued) (183 – 189 odd)

C. Solve applications using systems of linear equations with three variables (191, 193)

**Suggested Homework Exercises: 183 – 193 odd**

#### 4.5 Solve Systems of Equations Using Matrices

Topics:

A. Write the augmented matrix for a system of equations (197 – 203 odd)

B. Use row operations on a matrix (205 – 209 odd)

C. Solve systems of equations using matrices (211 – 229 odd)

**Suggested Homework Exercises: 197 – 229 odd**

#### 4.6 Solve Systems of Equations Using Determinants (Part 1)

Topics:

A. Evaluate the determinant of a 2 X 2 matrix (233, 235)

B. Evaluate the determinant of a 3 X 3 matrix (237 – 247 odd)

C. Use Cramer's Rule to solve systems of two equations (249 – 255 odd)

**Suggested Homework Exercises: 233 – 255 odd**





#### 4.6 Solve Systems of Equations Using Determinants (Part 2)

Topics:

D. Use Cramer's Rule to solve systems of three equations (257 – 271 odd)

E. Solve applications using determinants (273, 275)

**Suggested Homework Exercises: 257 – 275 odd**

#### 4.7 Graphing Systems of Linear Inequalities

Topics:

A. Determine whether an ordered pair is a solution to a system of linear inequalities (281 – 285 odd)

B. Solve a system of linear inequalities by graphing (287 – 317 odd)

C. Solve applications of systems of inequalities (319 – 325 odd)

**Suggested Homework Exercises: 281 – 325 odd**

## CHAPTER 5 – POLYNOMIALS AND POLYNOMIAL FUNCTIONS

#### 5.1 Add and Subtract Polynomials

Topics:

A. Determine the degree of polynomials (1 – 7 odd)

B. Add and subtract polynomials (9 – 61 odd)

C. Evaluate a polynomial function for a given value (63 – 71 odd)

D. Add and subtract polynomial functions (73, 75)

**Suggested Homework Exercises: 1 – 75 odd**

#### 5.2 Properties of Exponents and Scientific Notation

Topics:

A. Simplify expressions using the properties of exponents (81 – 161 odd)

B. Use scientific notation (163 – 173 odd)

**Suggested Homework Exercises: 81 – 173 odd**

#### 5.3 Multiply Polynomials

Topics:

A. Multiply monomials (179, 181)

B. Multiply a polynomial by a monomial (183, 185)

C. Multiply binomials (187 – 205 odd)

D. Multiply a polynomial by a polynomial (207 – 277 odd)

E. Multiply polynomial functions (279 – 283 odd)

**Suggested Homework Exercises: 179 – 283 odd**

#### 5.4 Dividing Polynomials (Part 1)

Topics:

A. Dividing monomials (289 – 295 odd)

B. Dividing a polynomial by a monomial (297 – 303 odd)

C. Dividing polynomials using long division (305 – 315 odd)

**Suggested Homework Exercises: 289 – 315 odd**





#### 5.4 Dividing Polynomials (Part 2)

Topics:

D. Dividing polynomials using synthetic division (317 – 323 odd)

E. Dividing polynomial functions (325 – 329 odd)

F. Use the remainder and factor theorems (331 – 337 odd)

**Suggested Homework Exercises: 317 – 337 odd**

## CHAPTER 6 – FACTORING

#### 6.1 Greatest Common Factor and Factor by Grouping

Topics:

A. Find the greatest common factor (GCF) of two or more expressions (1 – 7 odd)

B. Factor the greatest common factor from a polynomial (9 – 35 odd)

C. Factor by grouping (37 – 55 odd)

**Suggested Homework Exercises: 1 – 55 odd**

#### 6.2 Factoring Trinomials (Part 1)

Topics:

A. Factor trinomials of the form  $x^2 + bx + c$  using trial and error (61 – 87 odd)

B. Factor trinomials of the form  $ax^2 + bx + c$  using trial and error (89 – 109 odd)

**Suggested Homework Exercises: 61 – 109 odd**

#### 6.2 Factoring Trinomials (Part 2)

Topics:

C. Factor trinomials using the AC method (111 – 125 odd)

D. Factor using substitution (127 – 153 odd)

**Suggested Homework Exercises: 111 – 153 odd**

#### 6.3 Factor Special Products (Part 1)

Topics:

A. Factor perfect square trinomials (159 – 173 odd)

B. Factor difference of squares (175 – 193 odd)

**Suggested Homework Exercises: 159 – 193 odd**

#### 6.3 Factor Special Products (Part 2)

Topics:

C. Factor sums and differences of cubes (195 – 227 odd)

**Suggested Homework Exercises: 195 – 227 odd**

#### 6.4 General Strategy for Factoring Polynomials

Topics:

A. Recognize and use the appropriate method to factor a polynomial completely (233 – 271 odd)

**Suggested Homework Exercises: 233 – 271 odd**





### 6.5 Polynomial Equations (Part 1)

Topics:

- A. Use the Zero Product Property (277 – 281 odd)
- B. Solve quadratic equations by factoring (283 – 311 odd)
- C. Solve equations with polynomial functions (313 – 319 odd)

**Suggested Homework Exercises: 277 – 319 odd**

### 6.5 Polynomial Equations (Part 2)

Topics:

- D. Solve applications modeled by polynomial equations (321 – 333 odd)

**Suggested Homework Exercises: 321 – 333 odd**

## CHAPTER 7 – RATIONAL EXPRESSIONS AND FUNCTIONS

### 7.1 Multiply and Divide Rational Expressions

Topics:

- A. Determine the values for which the rational expression is undefined (1, 3)
- B. Simplify rational expressions (5 – 27 odd)
- C. Multiply rational expressions (29 – 41 odd)
- D. Divide rational expressions (43 – 57 odd)
- E. Multiply and divide rational functions (59 – 69 odd)

**Suggested Homework Exercises: 1 – 69 odd**

### 7.2 Add and Subtract Rational Expressions (Part 1)

Topics:

- A. Add and subtract expressions with a common denominator (75 – 89 odd)
- B. Add and subtract expressions whose denominators are opposites (91 – 97 odd)
- C. Find the least common denominator (LCD) of rational expressions (99 – 105 odd)

**Suggested Homework Exercises: 75 – 105 odd**

### 7.2 Add and Subtract Rational Expressions (Part 2)

Topics:

- D. Add and subtract rational expressions with unlike denominators (107 – 141 odd)
- E. Add and subtract rational functions (143, 145)

**Suggested Homework Exercises: 107 – 145 odd**

### 7.3 Simplify Complex Rational Expressions

Topics:

- A. Simplify a complex rational expression by writing it as a division (151 – 165 odd)
- B. Simplify a complex rational expression by using the LCD (167 – 193 odd)

**Suggested Homework Exercises: 151 – 193 odd**



**7.4 Solve Rational Equations (Part 1)**

Topics:

A. Solve rational equations (197 – 229 odd)

**Suggested Homework Exercises: 197 – 229 odd****7.4 Solve Rational Equations (Part 2)**

Topics:

B. Use rational functions (231, 233)

C. Solve a rational equation for a specific variable (235 – 249 odd)

**Suggested Homework Exercises: 231 – 249 odd****7.5 Solve Applications with Rational Equations (Part 1)**

Topics:

A. Solve proportions (253 – 273 odd)

B. Solve similar figure applications (275 – 283 odd)

C. Solve uniform motion applications (285 – 303 odd)

**Suggested Homework Exercises: 253 – 303 odd****7.5 Solve Applications with Rational Equations (Part 2)**

Topics:

D. Solve work applications (305 – 311 odd)

E. Solve direct variation problems (313 – 321 odd)

F. Solve inverse variation problems (323 – 333 odd)

**Suggested Homework Exercises: 305 – 333 odd****7.6 Solve Rational Inequalities**

Topics:

A. Solve rational inequalities (339 – 369 odd)

B. Solve an inequality with rational functions (371, 373)

**Suggested Homework Exercises: 339 – 373 odd****CHAPTER 8 – ROOTS AND RADICALS****8.1 Simplify Expressions with Roots**

Topics:

A. Simplify expressions with roots (1 – 17 odd)

B. Estimate and approximate roots (19 – 25 odd)

C. Simplify variable expressions with roots (27 – 49 odd)

**Suggested Homework Exercises: 1 – 49 odd****8.2 Simplify Radical Expressions**

Topics:

A. Use the Product Property to simplify radical expressions (55 – 85 odd)

B. Use the Quotient Property to simplify radical expressions (87 – 113 odd)

**Suggested Homework Exercises: 55 – 113 odd**



### 8.3 Simplify Rational Exponents

Topics:

- A. Simplify expressions with  $a^{1/n}$  (119 – 139 odd)
- B. Simplify expressions with  $a^{m/n}$  (141 – 149 odd)
- C. Use the properties of exponents to simplify expressions with rational exponents (151 – 161 odd)

**Suggested Homework Exercises: 119 – 161 odd**

### 8.4 Add, Subtract, and Multiply Radical Expressions

Topics:

- A. Add and subtract radical expressions (165 – 181 odd)
- B. Multiply radical expressions (183 – 189 odd)
- C. Use polynomial multiplication to multiply radical expressions (191 – 239 odd)

**Suggested Homework Exercises: 165 – 239 odd**

### 8.5 Divide Radical Expressions

Topics:

- A. Divide radical expressions (245 – 257 odd)
- B. Rationalize a one term denominator (259 – 269 odd)
- C. Rationalize a two term denominator (271 – 281 odd)

**Suggested Homework Exercises: 245 – 281 odd**

### 8.6 Solve Radical Equations

Topics:

- A. Solve radical equations with one radical (287 – 321 odd)
- B. Solve radical equations with two radicals (323 – 341 odd)
- C. Use radicals in applications (343 – 347 odd)

**Suggested Homework Exercises: 287 – 347 odd**

### 8.7 Use Radical in Functions

Topics:

- A. Evaluate a radical function (351 – 365 odd)
- B. Find the domain of a radical function (367 – 381 odd)
- C. Graph radical functions (383 – 403 odd)

**Suggested Homework Exercises: 351 – 403 odd**

### 8.8 Use the Complex Number System

Topics:

- A. Evaluate the square root of a negative number (409, 411)
- B. Add and subtract complex numbers (413 – 427 odd)
- C. Multiply complex numbers (429 – 455 odd)
- D. Divide complex numbers (457 – 467 odd)
- E. Simplify powers of  $i$  (469 – 475 odd)

**Suggested Homework Exercises: 409 – 475 odd**





## CHAPTER 9 – QUADRATIC EQUATIONS AND FUNCTIONS

### 9.1 Solve Quadratic Equations Using the Square Root Property

Topics:

A. Solve quadratic equations of the form  $ax^2 = k$  (1 – 21 odd)

B. Solve quadratic equations of the form  $a(x - h)^2 = k$  (23 – 67 odd)

**Suggested Homework Exercises: 1 – 67 odd**

### 9.2 Solve Quadratic Equations by Completing the Square

Topics:

A. Solve quadratic equations of the form  $x^2 + bx + c = 0$  by completing the square (71 -97 odd)

B. Solve quadratic equations of the form  $ax^2 + bx + c = 0$  by completing the square (99 – 109 odd)

**Suggested Homework Exercises: 71 – 109 odd**

### 9.3 Solve Quadratic Equations Using the Quadratic Formula

Topics:

A. Solve quadratic equations using the Quadratic Formula (113 – 143 odd)

B. Use the discriminant to determine the number and type of solutions of a quadratic equation (145, 147)

C. Identify the most appropriate method to use to solve a quadratic equation (149, 151)

**Suggested Homework Exercises: 113 – 151 odd**

### 9.4 Solve Quadratic Equations in Quadratic Form

Topics:

A. Solve equations in quadratic form (155 – 191 odd)

**Suggested Homework Exercises: 155 – 191 odd**

### 9.5 Solve Applications of Quadratic Equations

Topics:

A. Solve applications modeled by quadratic equations (195 – 225 odd)

**Suggested Homework Exercises: 195 – 225 odd**

### 9.6 Graph Quadratic Functions Using Properties (Part 1)

Topics:

A. Recognize the graph of a quadratic function (229 – 235 odd)

B. Identify the properties of a quadratic function (237 – 251 odd)

**Suggested Homework Exercises: 229 – 251 odd**

### 9.6 Graph Quadratic Functions Using Properties (Part 2)

Topics:

C. Graph quadratic functions using properties (253 – 269 odd)

D. Solve maximum and minimum applications (271 – 287 odd)

**Suggested Homework Exercises: 253 – 287 odd**







### 9.7 Graph Quadratic Functions Using Transformations (Part 1)

Topics:

- A. Graph quadratic functions of the form  $f(x) = x^2 + k$  (293 – 299 odd)
- B. Graph quadratic functions of the form  $f(x) = (x - h)^2$  (301 – 315 odd)
- C. Graph quadratic functions of the form  $f(x) = ax^2$  (317 – 323 odd)

**Suggested Homework Exercises: 293 – 323 odd**

### 9.7 Graph Quadratic Functions Using Transformations (Part 2)

Topics:

- D. Rewrite a function of the form  $f(x) = ax^2 + bx + c$  into the form  $f(x) = a(x - h)^2 + k$  (325, 327)
- E. Graph quadratic functions using transformations (329 – 347 odd)
- F. Find a quadratic function from its graph (349 – 359 odd)

**Suggested Homework Exercises: 325 – 359 odd**

### 9.8 Solve Quadratic Inequalities

Topics:

- A. Solve quadratic inequalities graphically (363 – 369 odd)
- B. Solve quadratic inequalities algebraically (371 – 389 odd)

**Suggested Homework Exercises: 363 – 389 odd**

## CHAPTER 10 – EXPONENTIAL AND LOGARITHMIC FUNCTIONS

### 10.1 Finding Composite and Inverse Functions

Topics:

- A. Find and evaluate composite functions (1 – 11 odd)
- B. Determine whether a function is one-to-one (13 – 19 odd)
- C. Find the inverse of a function (21 – 61 odd)

**Suggested Homework Exercises: 1 – 61 odd**

### 10.2 Evaluate and Graph Exponential Functions

Topics:

- A. Graph exponential functions (65 – 83 odd)
- B. Solve exponential equations (85 – 113 odd)
- C. Use exponential models in applications (115 – 121 odd)

**Suggested Homework Exercises: 65 – 121 odd**

### 10.3 Evaluate and Graph Logarithmic Functions

Topics:

- A. Convert between exponential and logarithmic form (127 – 153 odd)
- B. Graph logarithmic functions (179 – 187 odd)
- C. Evaluate logarithmic functions (155 – 177 odd)
- D. Solve logarithmic equations (189 – 207 odd)
- E. Use logarithmic models in applications (209 – 213 odd)

**Suggested Homework Exercises: 127 – 213 odd**





#### 10.4 Use the Properties of Logarithms

Topics:

A. Use the properties of logarithms (219 – 277 odd)

B. Use the change of base formula (279 – 283 odd)

**Suggested Homework Exercises: 219 – 283 odd**

#### 10.5 Solve Exponential and Logarithmic Functions (Part 1)

Topics:

A. Solve logarithmic equations using the properties of logs (289 – 305 odd)

B. Solve exponential equations using logs (307 – 343 odd)

**Suggested Homework Exercises: 289 – 343 odd**

#### 10.5 Solve Exponential and Logarithmic Functions (Part 2)

Topics:

C. Use exponential models in applications (345 – 353 odd)

**Suggested Homework Exercises: 345 – 353 odd**

## CHAPTER 11 – CONICS

#### 11.0 Introduction to Conic Sections

Topics:

A. Introduction to Conic Sections

**Suggested Homework Exercises: None**

#### 11.1 Distance and Midpoint Formulas; Circles

Topics:

A. Use the Distance Formula (1 – 11 odd)

B. Use the Midpoint Formula (13, 15)

C. Write the equation of a circle in standard form (17 – 27 odd)

D. Graph a circle (29 – 47 odd)

**Suggested Homework Exercises: 1 – 47 odd**

#### 11.2 Parabolas

Topics:

A. Graph vertical parabolas (53 – 59 odd)

B. Graph horizontal parabolas (61 – 89 odd)

C. Solve applications with parabolas (91, 93)

**Suggested Homework Exercises: 53 – 93 odd**





### 11.3 Ellipses

Topics:

- A. Graph an ellipse with center at the origin (99 – 109 odd)
- B. Find the equation of an ellipse with center at the origin (111, 113)
- C. Graph an ellipse with center not at the origin (115 – 137 odd)
- D. Solve applications with ellipses (139, 141)

**Suggested Homework Exercises: 99 – 141 odd**

### 11.4 Hyperbolas

Topics:

- A. Graph a hyperbola with center at (0,0) (147 – 157 odd)
- B. Graph a hyperbola with center at (h,k) (159 – 173 odd)
- C. Identify conic sections by their equations (175 – 183 odd)

**Suggested Homework Exercises: 147 – 183 odd**

### 11.5 Solve Systems of Nonlinear Equations

Topics:

- A. Solve a system of nonlinear equations using graphing (189 – 199 odd)
- B. Solve a system of nonlinear equations using substitution (201 – 211 odd)
- C. Solve a system of nonlinear equations using elimination (213 – 227 odd)
- D. Use a system of nonlinear equations to solve applications (229 – 239 odd)

**Suggested Homework Exercises: 189 – 239 odd**

## CHAPTER 12 – SEQUENCES, SERIES, AND THE BINOMIAL THEOREM

### 12.1 Sequences

Topics:

- A. Write the first few terms of a sequence (1 – 17 odd)
- B. Find a formula for the general term (nth term) of a sequence (19 – 35 odd)
- C. Use factorial notation (37 – 47 odd)
- D. Find the partial sum (49 – 59 odd)
- E. Use summation notation to write a sum (61 – 71 odd)

**Suggested Homework Exercises: 1 – 71 odd**

### 12.2 Arithmetic Sequences

Topics:

- A. Determine if a sequence is arithmetic (77 -87 odd)
- B. Find the general term (nth term) of an arithmetic sequence (89 – 105 odd)
- C. Find the sum of the first n terms of an arithmetic sequence (107 – 121 odd)

**Suggested Homework Exercises: 77 – 121 odd**





### 12.3 Geometric Sequences and Series

Topics:

- A. Determine if a sequence is geometric (127 – 143 odd)
- B. Find the general (nth term) of a geometric sequence (145 – 155 odd)
- C. Find the sum of the first  $n$  terms of a geometric sequence (157 – 167 odd)
- D. Find the sum of an infinite geometric series (169 – 181 odd)
- E. Apply geometric sequences and series in the real world (183, 185)

**Suggested Homework Exercises: 127 – 185 odd**

### 12.4 The Binomial Theorem

Topics:

- A. Use Pascal's Triangle to expand a binomial (193 – 209 odd)
- B. Evaluate a binomial coefficient (211, 213)
- C. Use the Binomial Theorem to expand a binomial (215 – 235 odd)

**Suggested Homework Exercises: 193 – 235 odd**

