THE MATH TRANSLATOR

ELEMENTARY ALGEBRA
COURSE OUTLINE

Professor
Melissa McNickle

This course is designed to be flexible. Your student may start at any time and work at whatever pace is comfortable for them. ==Please use this document in combination with the Course Calendar for planning purposes.== The calendar can be adjusted to make the course slower or faster, as desired by you and your student. There are four main elements to this course:

Step 1
Students watch the video lesson for that day and take notes as they would if they were in class.

Step 2
Students do the suggested homework exercises listed on each lesson page. The homework is done out of the free online OpenStax Elementary Algebra textbook (www.openstax.org). Students can check their answers on the homework problems in the answer key of the book and if they have questions they can reference the homework support videos posted on the lesson page.

Step 3
At the end of the chapter, students study for the test by doing the assigned review exercises out of the OpenStax book. They may check their answers in the answer key of the book.

Step 4
When students are ready, they do the assigned exercises on the Practice Test provided in the OpenStax book. Students, or parents, can then grade the test using the "Practice Test Answer Keys" posted on the Courses Homepage.

The rest of this document lists the course topics, homework exercises, review exercises, and test exercises in detail.

> ==Please watch the "Orientation Video for Homeschool Parents"== on the Courses Homepage to become oriented in more detail with how this course works as well as the various features of the website.

COURSE OVERVIEW

Chapter 10 – Quadratic Equations

CHAPTER 1 - FOUNDATIONS

1.1 **Introduction to Whole Numbers**
Topics:
A. Use place value with whole numbers (1 – 35 odd)
B. Identify multiples and apply divisibility (37 – 47 odd)
C. Find prime factorizations and least common multiples (LCM) (49 – 69 odd)
Suggested Homework Exercises: 1 – 69 odd

1.2 **Use the Language of Algebra**
Topics:
A. Simplify expressions using order of operations (83 – 125 odd)
B. Evaluate an expression (127 – 139 odd)
C. Identify and combine like terms (141 – 161 odd)
D. Translate an English phrase to an algebraic expression (163 – 177 odd)
Suggested Homework Exercises: 83 – 177 odd

1.3 **Add and Subtract Integers**
Topics:
A. Use negatives and opposites (185 – 193 odd)
B. Simplify expressions with absolute value (195 – 207 odd)
C. Add integers (209 – 217 odd)
D. Subtract integers (219 – 253 odd)
Suggested Homework Exercises: 185 – 253 odd

1.4 **Multiply and Divide Integers**
Topics:
A. Multiply and divide integers (265 – 277 odd)
B. Simplify expressions with integers (279 – 295 odd)
C. Evaluate variable expressions with integers (297 – 313 odd)
D. Translate English phrases to algebraic expressions (315 – 327 odd)
E. Use integers in applications (329 – 335 odd)
Suggested Homework Exercises: 265 – 335 odd

1.5 **Visualize Fractions**
Topics:
A. Simplify fractions (343 – 355 odd)
B. Multiply fractions (357 – 371 odd)
C. Divide fractions (373 – 391 odd)
D. Simplify expressions written with a fraction bar (393 – 411 odd)
E. Translate phrases to expressions with fractions (413, 415)
Suggested Homework Exercises: 343 – 415 odd

1.6   Add and Subtract Fractions
Topics:
A. Add or subtract fractions with a common denominator (425 – 447 odd)
B. Add or subtract fractions with different denominators (457 – 479 odd)
C. Use order of operations to simplify complex fractions (495 – 515 odd)
D. Evaluate variable expressions with fractions (517 – 525 odd)
Suggested Homework Exercises: 425 – 447 odd, 457 - 479 odd, 495 – 525 odd

1.7   Decimals
Topics:
A. Name and write decimals (531 – 545 odd)
B. Round decimals (547 – 559 odd)
C. Add and subtract decimals (561 - 577 odd)
D. Multiply and divide decimals (579 – 605 odd)
E. Convert decimals, fractions, and percents (607 – 647 odd)
Suggested Homework Exercises: 531 – 647 odd

1.8   The Real Numbers
Topics:
A. Simplify expressions with square roots (659 – 669 odd)
B. Identify integers, rational numbers, irrational numbers, and real
   numbers (671 – 689 odd)
C. Locate fractions on the number line (691 – 705 odd)
D. Locate decimals on the number line (707 – 717 odd)
Suggested Homework Exercises : 659 – 717 odd

1.9   Properties of Real Numbers
Topics:
A. Use the commutative and associative properties (723 – 749 odd)
B. Use the identity and inverse properties of addition and multiplication (751 – 757 odd)
C. Use the properties of zero (759 – 779 odd)
D. Simplify expressions using the distributive property (781 – 815 odd)
Suggested Homework Exercises : 723 – 815 odd

1.10   Systems of Measurement
Topics:
A. Perform unit conversions in the U.S. system (825 – 857 odd)
B. Perform unit conversions in the metric system(859 – 879 odd)
C. Convert between the U.S. and the metric systems of measurement (881 – 891 odd)
D. Convert between Fahrenheit and Celsius temperatures (893 – 907 odd)
Suggested Homework Exercises: 825 – 907 odd

SUGGESTED REVIEW: Chapter 1 Review Exercises
Day One of review do review exercises: 913 – 1113 every other odd
Day Two of review do review exercises: 1115 – 1309 every other odd

> **Suggested Test: Do all exercises 1311 – 1345 on the Chapter 1 Practice Test**
> *Note: Grade your test using the Practice Test Answer Key posted on the course homepage.

CHAPTER 2 – SOLVING LINEAR EQUATIONS AND INEQUALITIES

2.1   Solve Equations Using the Subtraction and Addition Properties of Equality
Topics:
A. Verify a solution of an equation (1, 3)
B. Solve equations using the Subtraction and Addition Properties of
    Equality (5 – 49 odd)
C. Translate to an equation and solve (51 – 61 odd)
D. Translate and solve applications (63 – 71 odd)
Suggested Homework Exercises: 1 – 71 odd

2.2   Solve Equations Using the Division and Multiplication Properties of Equality
Topics:
A. Solve equations using the Division and Multiplication Properties of
    Equality (77 – 141 odd)
B. Translate to an equation and solve (143 – 161 odd)
C. Translate and solve applications (163 – 169 odd)
Suggested Homework Exercises: 77 – 169 odd

2.3   Solve Equations with Variables and Constants on Both Sides
Topics:
A. Solve an equation with constants on both sides (175 – 185 odd)
B. Solve an equation with variables on both sides (187 – 197 odd)
C. Solve an equation with variables and constants on both sides (199 – 225 odd)
Suggested Homework Exercises: 175 – 225 odd

2.4   Use a General Strategy to Solve Linear Equations
Topics:
A. Solve equations using a general strategy (233 – 291 odd)
B. Classify equations (293 – 311 odd)
Suggested Homework Exercises: 233 – 311 odd

2.5   Solve Equations with Fractions or Decimals
Topics:
A. Solve equations with fraction coefficients (319 – 353 odd)
B. Solve equations with decimal coefficients (355 – 369 odd)
Suggested Homework Exercises: 319 – 369 odd

2.6   **Solve a Formula for a Specific Variable**
Topics:
A. Use the Distance, Rate, and Time Formula (377 – 387 odd)
B. Solve a formula for a specific variable (389 – 425 odd)
Suggested Homework Exercises: 377 – 425 odd

2.7   **Solve Linear Inequalities**
Topics:
A. Graph inequalities on a number line (431 – 437 odd)
B. Solve inequalities using properties and simplification (439 – 491 odd)
C. Translate to an inequality and solve (493 – 503 odd)
Suggested Homework Exercises: 431 – 503 odd

<mark>**SUGGESTED REVIEW:**</mark> Chapter 2 Review Exercises
   Day One of review do review exercises: 513 – 587 odd
   Day Two of review do review exercises: 589 – 629 odd

<mark>**SUGGESTED ASSESSMENT**</mark>: Chapter 2 Practice Test
   Suggested Test: Do all exercises 631 – 660 on the Chapter 2 Practice Test
   *Note: Grade your test using the Practice Test Answer Key posted on the course homepage.

CHAPTER 3 – MATH MODELS

3.1   **Use a Problem-Solving Strategy**
Topics:
A. Use a problem-solving strategy for word problems (1 – 13 odd)
B. Solve number problems (15 – 55 odd)
Suggested Homework Exercises: 1 – 55 odd

3.2   **Solve Percent Applications**
Topics:
A. Translate and solve basic percent equations (67 – 89 odd)
B. Solve percent applications (91 – 107 odd)
C. Find percent increase and percent decrease (109 – 119 odd)
D. Solve applications with discount or mark-up (133 – 153 odd)
Suggested Homework Exercises: 67 – 119 odd, 133 – 153 odd

3.3   **Solve Mixture Applications (Part 1)**
Topics:
A. Solve coin word problems (161 – 177 odd)
B. Solve ticket and stamp word problems (179 – 191 odd)
Suggested Homework Exercises: 161 – 191 odd

3.3 **Solve Mixture Applications (Part 2)**
Topics:
A. Solve mixture word problems (193 – 197 odd)
B. Use the mixture model to solve investment problems using simple
   interest (199 – 203 odd)
Suggested Homework Exercises: 193 – 203 odd

3.4 **Solve Geometry Applications: Triangles, Rectangles, and the Pythagorean Theorem**
Topics:
A. Solve applications using properties of triangles (211 – 233 odd)
B. Use the Pythagorean Theorem (235 – 249 odd)
C. Solve applications using rectangle properties (251 – 275 odd)
Suggested Homework Exercises: 211 – 275 odd

3.5 **Solve Uniform Motion Applications**
Topics:
A. Solve uniform motion applications (283 – 303 odd)
Suggested Homework Exercises: 283 – 303 odd

3.6 **Solve Applications with Linear Inequalities**
Topics:
A. Solve applications with linear inequalities (309 – 331 odd)
Suggested Homework Exercises: 309 – 331 odd

SUGGESTED REVIEW: Chapter 3 Review Exercises
Day One of review do review exercises: 339 – 379 odd
Day Two of review do review exercises: 381 – 423 odd

SUGGESTED ASSESSMENT: Chapter 3 Practice Test
Suggested Test: Do all exercises 425 – 444 on the Chapter 3 Practice Test
*Note: Grade your test using the Practice Test Answer Key posted on the course homepage.

CHAPTER 4 – GRAPHS

4.1 **Use the Rectangular Coordinate System**
Topics:
A. Plot points in a rectangular coordinate system (1 – 11 odd)
B. Verify solutions to an equation in two variables (13 – 19 odd)
C. Complete a table of solutions to a linear equation (21 – 31 odd)
D. Find solutions to a linear equation in two variables (33 – 47 odd)
Suggested Homework Exercises: 1 – 47 odd

4.2   Graph Linear Equations in Two Variables
Topics:
A. Recognize the relationship between the solutions of an equation and its
   graph (55, 57)
B. Graph a linear equation by plotting points (59 – 101 odd)
C. Graph vertical and horizontal lines (103 – 133 odd)
Suggested Homework Exercises: 55 – 133 odd

4.3   Graph with Intercepts
Topics:
A. Identify the x and y-intercepts on a graph (139 – 149 odd)
B. Find the x and y-intercepts from an equation of a line (151 – 177 odd)
C. Graph a line using the intercepts (179 – 203 odd)
Suggested Homework Exercises: 139 – 203 odd

4.4   Understand Slope of a Line
Topics:
A. Use $m = \frac{rise}{run}$ to find the slope of a line from its graph (227 – 241 odd)
B. Find the slope of horizontal and vertical lines (243 – 249 odd)
C. Use the slope formula to find the slope of a line between two points (251 – 261 odd)
D. Graph a line given a point and the slope (263 – 277 odd)
E. Solve slope applications (279 – 283 odd)
Suggested Homework Exercises: 227 – 283 odd

4.5   Use the Slope-Intercept Form of an Equation of a Line (Part 1)
Topics:
A. Identify the slope-intercept form of a line (295 – 303 odd)
B. Recognize the relationship between the graph and the slope-intercept form
   of a line (289 – 293 odd)
C. Graph a line using its slope and y-intercept (305 – 319 odd)
D. Choose the most convenient method to graph a line (321 – 335 odd)
Suggested Homework Exercises: 289 – 335 odd

4.5   Use the Slope-Intercept Form of an Equation of a Line (Part 2)
Topics:
A. Graph and interpret applications of slope-intercept (337 – 343 odd)
B. Use slopes to identify parallel lines (345 – 369 odd)
C. Use slopes to identify perpendicular lines (371 – 381 odd)
Suggested Homework Exercises: 337 – 381 odd

4.6   **Find the Equation of a Line (Part 1)**
Topics:
A. Find the equation of a line given the slope and y-intercept (387 – 409 odd)
B. Find the equation of a line given the slope and a point (411 – 427 odd)
C. Find the equation of a line given two points (429 – 453 odd)
Suggested Homework Exercises: 387 – 453 odd

4.6   **Find the Equation of a Line (Part 2)**
Topics:
D. Find the equation of a line parallel to a given line (455 – 469 odd)
E. Find the equation of a line perpendicular to a given line (471 – 481 odd)
F. Mixed Practice (483 – 499 odd)
Suggested Homework Exercises: 455 – 499 odd

4.7   **Graphs of Linear Inequalities**
Topics:
A. Verify solutions to an inequality in two variables (505 – 509 odd)
B. Recognize the relationship between the solutions of an inequality
   and its graph (511 – 521 odd)
C. Graph linear inequalities (523 – 551 odd)
Suggested Homework Exercises: 505 – 551 odd

SUGGESTED REVIEW: Chapter 4 Review Exercises
   Day One of review do review exercises: 557 – 597 odd, 603 – 623 odd
   Day Two of review do review exercises: 625 – 681 odd

SUGGESTED ASSESSMENT: Chapter 4 Practice Test
   Suggested Test: Do all exercises 682 – 706 on the Chapter 4 Practice Test
   *Note: Grade your test using the Practice Test Answer Key posted on the course
   homepage.

CHAPTER 5 – SYSTEMS OF LINEAR EQUATIONS

5.1   **Solve Systems of Equations by Graphing**
Topics:
A. Determine whether an ordered pair is a solution to a system of equations (1 – 7 odd)
B. Solve a system of equations by graphing (9 – 49 odd)
C. Determine the number of solutions of a linear system (51 – 61 odd)
Suggested Homework Exercises: 1 – 61 odd

5.2   **Solve Systems of Equations by Substitution**
Topics:
A. Solve systems of equations by substitution (71 – 105 odd)
B. Solve applications of systems of equations by substitution (107 – 121 odd)
Suggested Homework Exercises: 71 – 121 odd

5.3   **Solve Systems of Equations by Elimination**
Topics:
A. Solve a system of equations by elimination (127 – 165 odd)
B. Solve applications of systems of equations by elimination (167 – 173 odd)
C. Choose the most convenient method to solve a system of linear equations (175, 177)
Suggested Homework Exercises: 127 – 177 odd

5.4   **Solve Applications with Systems of Equations (Part 1)**
Topics:
A. Solve direct translation applications (183 – 205 odd)
B. Solve geometry applications (207 – 221 odd)
Suggested Homework Exercises: 183 – 221 odd

5.4   **Solve Applications with Systems of Equations (Part 2)**
Topics:
A. Solve uniform motion applications (223 – 233 odd)
Suggested Homework Exercises: 223 – 233 odd

5.5   **Solve Mixture Applications with Systems of Equations**
Topics:
A. Solve mixture applications (239 – 261 odd)
B. Solve interest applications (263 – 269 odd)
Suggested Homework Exercises: 239 – 269 odd

5.6   **Graphing Systems of Linear Inequalities**
Topics:
A. Determine whether an ordered pair is a solution of a system of linear
    inequalities (275 – 281 odd)
B. Solve a system of linear inequalities (283 – 313 odd)
C. Solve applications of systems of inequalities (315 – 321 odd)
Suggested Homework Exercises: 275 – 321 odd

==SUGGESTED REVIEW:== Chapter 5 Review Exercises
      Day One of review do review exercises: 327 – 359 odd
      Day Two of review do review exercises: 361 – 389 odd

==SUGGESTED ASSESSMENT==: Chapter 5 Practice Test
      Suggested Test: Do all exercises 391 – 407 on the Chapter 5 Practice Test
      *Note: Grade your test using the Practice Test Answer Key posted on the course homepage.

CHAPTER 6 – SYSTEMS OF LINEAR EQUATIONS

6.1   Add and Subtract Polynomials
Topics:
A. Determine the degree of polynomials (1 – 7 odd)
B. Add and subtract polynomials (9 – 69 odd)
C. Evaluate a polynomial for a given value (71 – 77 odd)
Suggested Homework Exercises: 1 – 77 odd

6.2   Use Multiplication Properties of Exponents
Topics:
A. Simplify expressions with exponents (89 – 97 odd)
B. Simplify expressions using the Product Property (99 – 113 odd)
C. Simplify expressions using the Power Property (115, 117)
D. Simplify expressions using the Product to a Power Property (119, 121)
E. Simplify expressions by applying several properties (123 – 163 odd)
Suggested Homework Exercises: 89 – 163 odd

6.3   Multiply polynomials
Topics:
A. Multiply a polynomial by a monomial (173 – 235 odd)
B. Multiply a binomial by a binomial (237 – 265 odd)
C. Multiply a trinomial by a binomial (267 – 273 odd)
Suggested Homework Exercises: 173 – 273 odd

6.4   Special Products
Topics:
A. Square a binomial using the Binomial Squares Pattern (303 – 321 odd)
B. Multiply conjugates using the Product of Conjugates Pattern (323 – 345 odd)
C. Recognize and use the appropriate special product pattern (347, 349)
Suggested Homework Exercises: 303 – 349 odd

6.5   Divide Monomials
Topics:
A. Simplify expressions using the Quotient Property for Exponents (357 – 363 odd)
B. Simplify expressions with zero exponents (365 – 373 odd)
C. Simplify expressions using the Quotient to a Power Property (375, 377)
D. Simplify expressions by applying several properties (379 – 405 odd)
E. Divide monomials (407 – 421 odd)
Suggested Homework Exercises: 357 – 421 odd

6.6   Divide Polynomials
Topics:
A. Divide a polynomial by a monomial (443 – 473 odd)
B. Divide a polynomial by a binomial (475 – 495 odd)
Suggested Homework Exercises: 443 – 495 odd

6.7   Integer Exponents and Scientific Notation
Topics:
A. Use the definition of a negative exponent (501 – 527 odd)
B. Simplify expressions with integer exponents (529 – 549 odd)
C. Convert from decimal notation to scientific notation (551 – 557 odd)
D. Convert scientific notation to decimal form (559 – 565 odd)
E. Multiply and divide using scientific notation (567 – 573 odd)
Suggested Homework Exercises: 501 – 573 odd

SUGGESTED REVIEW: Chapter 6 Review Exercises
   Day One of review do review exercises: 589 – 663 odd
   Day Two of review do review exercises: 665 – 751 odd

SUGGESTED ASSESSMENT: Chapter 6 Practice Test
   Suggested Test: Do all exercises 752 – 783 on the Chapter 6 Practice Test
   *Note: Grade your test using the Practice Test Answer Key posted on the course homepage.

CHAPTER 7 – FACTORING

7.1   Greatest Common Factor and Factor by Grouping
Topics:
A. Find the greatest common factor (GCF) of two or more expressions (1 – 17 odd)
B. Factor the greatest common factor from a polynomial (19 – 43 odd)
C. Factor by grouping (45 – 57 odd)
Suggested Homework Exercises: 1 – 57 odd

7.2   Factor Trinomials of the Form $x^2 + bx + c$
Topics:
A. Factor trinomials of the form $x^2 + bx + c$ (63 – 95 odd)
B. Factor trinomials of the form $x^2 + bxy + cy^2$ (97 – 127 odd)
Suggested Homework Exercises: 63 – 127 odd

7.3   Factor Trinomials of the Form $ax^2 + bx + c$ (Part 1)
Topics:
A. Factor trinomials of the form $ax^2 + bx + c$ with a GCF (135 – 149 odd)
B. Factor trinomials using Trial and Error (151 – 165 odd)
Suggested Homework Exercises: 135 – 165 odd

7.3 **Factor Trinomials of the Form $ax^2 + bx + c$ (Part 2)**
Topics:
C. Factor trinomials using the AC Method (167 – 207 odd)
Suggested Homework Exercises: 167 – 207 odd

7.4 **Factor Special Products (Part 1)**
Topics:
A. Factor perfect square trinomials (215 – 231 odd)
B. Factor difference of squares (233 – 247 odd)
Suggested Homework Exercises: 215 – 247 odd

7.4 **Factor Special Products (Part 2)**
Topics:
C. Factor sums and differences of cubes
Suggested Homework Exercises: 249 – 271 odd

7.5 **General Strategy for Factoring Polynomials**
Topics:
A. Recognize and use the appropriate method to factor a polynomial completely
Suggested Homework Exercises: 279 – 309 odd

7.6 **Quadratic Equations**
Topics:
A. Solve quadratic equations by using the Zero Product Property (315 – 323 odd)
B. Solve quadratic equations by factoring (325 – 341 odd)
C. Solve applications modeled by quadratic equations (343 – 357 odd)
Suggested Homework Exercises: 315 – 357 odd

==SUGGESTED REVIEW:== Chapter 7 Review Exercises
Day One of review do review exercises: 363 – 407 odd
Day Two of review do review exercises: 409 – 455 odd

==SUGGESTED ASSESSMENT==: Chapter 7 Practice Test
Suggested Test: Do all exercises 457 – 485 on the Chapter 7 Practice Test
*Note: Grade your test using the Practice Test Answer Key posted on the course homepage.

CHAPTER 8 – RATIONAL EXPRESSIONS AND EQUATIONS

8.1   Simplify Rational Expressions
Topics:
A. Determine the values for which a rational expression is undefined (1, 3)
B. Evaluate rational expressions (5 – 15 odd)
C. Simplify rational expressions (17 – 55 odd)
D. Simplify rational expressions with opposite factors (57 – 67 odd)
Suggested Homework Exercises: 1 – 67 odd

8.2   Multiply and Divide Rational Expressions
Topics:
A. Multiply rational expressions (73 – 95 odd)
B. Divide rational expressions (97 – 123 odd)
Suggested Homework Exercises: 73 – 123 odd

8.3   Add and Subtract Rational Expressions with a Common Denominator
Topics:
A. Add rational expressions with a common denominator (129 – 143 odd)
B. Subtract rational expressions with a common denominator (145 – 155 odd)
C. Add and subtract rational expressions whose denominators are
     opposites (157 – 163 odd)
Suggested Homework Exercises: 129 – 163 odd

8.4   Add and Subtract Rational Expressions with Unlike Denominators (Part 1)
Topics:
A. Find the least common denominator (LCD) of rational expressions (169 – 175 odd)
B. Find equivalent rational expressions (177 – 183 odd)
Suggested Homework Exercises: 169 – 183 odd

8.4   Add and Subtract Rational Expressions with Unlike Denominators (Part 2)
Topics:
C. Add rational expressions with different denominators (185 – 207 odd)
D. Subtract rational expressions with different denominators (209 – 249 odd)
Suggested Homework Exercises: 185 – 249 odd

8.5   Simplify Complex Rational Expressions
Topics:
A. Simplify a complex rational expression by writing it as a division (255 – 269 odd)
B. Simplify a complex rational expression by using the LCD (271 – 297 odd)
Suggested Homework Exercises: 255 – 297 odd

8.6 **Solve Rational Equations**
Topics:
A. Solve rational equations (303 – 341 odd)
B. Solve a rational equation for a specific variable (343 – 359 odd)
Suggested Homework Exercises: 303 – 359 odd

8.7 **Solve Proportion and Similar Figure Applications**
Topics:
A. Solve proportions (365 – 405 odd)
B. Solve similar figure applications (407 – 417 odd)
Suggested Homework Exercises: 365 – 417 odd

8.8 **Solve Uniform Motion and Work Applications**
Topics:
A. Solve uniform motion applications (429 – 445 odd)
B. Solve work applications (447 – 457 odd)
Suggested Homework Exercises: 429 – 457 odd

8.9 **Use Direct and Inverse Variation**
Topics:
A. Solve direct variation problems (463 – 481 odd)
B. Solve inverse variation problems (483 – 507 odd)
Suggested Homework Exercises: 463 – 507 odd

==SUGGESTED REVIEW:== Chapter 8 Review Exercises
Day One of review do review exercises: 513 – 567 odd
Day Two of review do review exercises: 569 – 611 odd

==SUGGESTED ASSESSMENT==: Chapter 8 Practice Test
Suggested Test: Do all exercises 613 – 637 on the Chapter 8 Practice Test
*Note: Grade your test using the Practice Test Answer Key posted on the course homepage.

CHAPTER 9 – ROOTS AND RADICALS

9.1 **Simplify and Use Square Roots**
Topics:
A. Simplify expressions with square roots (1 – 19 odd)
B. Estimate square roots (21, 23)
C. Approximate square roots (25, 27)
D. Simplify variable expressions with square roots (29 – 47 odd)
Suggested Homework Exercises: 1 – 47 odd

9.2   Simplify Square Roots
Topics:
A. Use the Product Property to simplify square roots (53 – 99 odd)
B. Use the Quotient Property to simplify square roots (101 – 139 odd)
Suggested Homework Exercises: 53 – 139 odd

9.3   Add and Subtract Square Roots
Topics:
A. Add and subtract like square roots (145 – 175 odd)
B. Add and subtract square roots that need simplification (177 – 227 odd)
Suggested Homework Exercises: 145 – 227 odd

9.4   Multiply Square Roots
Topics:
A. Multiply square roots (233 – 263 odd)
B. Use polynomial multiplication to multiply square roots (265 – 309 odd)
Suggested Homework Exercises: 233 – 309 odd

9.5   Divide Square Roots
Topics:
A. Divide square roots (317 – 343 odd)
B. Rationalize a one-term denominator (345 – 361 odd)
C. Rationalize a two-term denominator (363 – 383 odd)
Suggested Homework Exercises: 317 – 383 odd

9.6   Solve Equations with Square Roots
Topics:
A. Solve radical equations (389 – 429 odd)
B. Use square roots in applications (431 – 439 odd)
Suggested Homework Exercises: 389 – 439 odd

9.7   Higher Roots
Topics:
A. Simplify expressions with higher roots (443 – 461 odd)
B. Use the Product Property to simplify expressions with higher roots (463 – 477 odd)
C. Use the Quotient Property to simplify expressions with higher roots (479 – 489 odd)
D. Add and subtract higher roots (491 – 519 odd)
Suggested Homework Exercises: 443 – 519 odd

9.8   Rational Exponents
Topics:
A. Simplify expressions with $a^{1/n}$ (525 – 549 odd)
B. Simplify expressions with $a^{m/n}$ (551 – 565 odd)
C. Use the Laws of Exponents to simplify expressions with rational exponents (567 – 599 odd)
Suggested Homework Exercises: 525 – 599 odd

==SUGGESTED REVIEW:== Chapter 9 Review Exercises
        Day One of review do review exercises: 607 – 689 odd
        Day Two of review do review exercises: 691 – 765 odd

==SUGGESTED ASSESSMENT==: Chapter 9 Practice Test
        Suggested Test: Do all exercises 766 – 789 on the Chapter 9 Practice Test
        *Note: Grade your test using the Practice Test Answer Key posted on the course homepage.

CHAPTER 10 – QUADRATIC EQUATIONS

10.1   Solve Quadratic Equations Using the Square Root Property
Topics:
A. Solve quadratic equations of the form $ax^2 = k$ (1 – 13 odd)
B. Solve quadratic equations of the form $a(x - h)^2 = k$ (15 – 51 odd)
Suggested Homework Exercises: 1 – 51 odd

10.2   Solve Quadratic Equations by Completing the Square
Topics:
A. Complete the square of a binomial expression (57 – 67 odd)
B. Solve quadratic equations of the form $x^2 + bx + c = 0$ by completing the square (69 – 87 odd)
C. Solve quadratic equations of the form $ax^2 + bx + c = 0$ by completing the square (89 – 93 odd)
Suggested Homework Exercises: 57 – 93 odd

10.3   Solve Quadratic Equations Using the Quadratic Formula
Topics:
A. Solve quadratic equations using the Quadratic Formula (99 – 129 odd)
B. Use the discriminant to determine the number of solutions of a quadratic equation (131, 133)
C. Identify the most appropriate method to use to solve a quadratic equation (135, 137)
Suggested Homework Exercises: 99 – 137 odd

10.4   **Solve Applications Modeled by Quadratic Equations**
Topics:
A. Solve applications modeled by Quadratic Equations (143 – 157 odd)
Suggested Homework Exercises: 143 – 157 odd

10.5   **Graphing Quadratic Equations in Two Variables (Part 1)**
Topics:
A. Recognize the graph of a quadratic equation in two variables (163 – 167 odd)
B. Identify the properties of a quadratic equation (169 – 177 odd)
Suggested Homework Exercises: 163 – 177 odd

10.5   **Graphing Quadratic Equations in Two Variables (Part 2)**
Topics:
C. Graph quadratic equations in two variables (179 – 195 odd)
D. Solve maximum and minimum applications (197 – 207 odd)
Suggested Homework Exercises: 179 – 207 odd

SUGGESTED REVIEW: Chapter 10 Review Exercises
        Day One of review do review exercises: 213 – 281 odd
        Day Two of review do review exercises: 283 – 321 odd

SUGGESTED ASSESSMENT: Chapter 10 Practice Test
        Suggested Test: Do all exercises 323 – 342 on the Chapter 10 Practice Test
        *Note: Grade your test using the Practice Test Answer Key posted on the course homepage.