**Unit 1 – Linear Functions (Chapter 1)**

* 1. Identifying Basic Parent Functions
  2. Transformations of Linear and Absolute Value Functions
  3. Modeling Linear Functions
  4. Solving Linear Systems Algebraically and Graphically

**Unit 2 – Quadratic Functions (Chapter 2)**

2.2 Graphing Quadratic Functions

2.1 Symbolic Representations and Transformations of Quadratic Functions

2.4 Converting Intercept/Vertex/Standard Forms with Modeling

2.3 Focus of a Parabola with Modeling

**Unit 3-Quadratic Equations and Complex Numbers (Chapter 3)**

3.2 Complex Numbers (with a review of all factoring)

3.1 Solving Quadratic Equations

3.3 Solving Quadratic Equations with Completing the Square

3.4 Solving Quadratic Functions by Quadratic Formula

3.5 Quadratic-Linear Systems of Equations

3.6 Modeling with Quadratic Equations/Inequalities

**Unit 4-Polynomial Functions (Chapter 4)**

4.1 Graphs of Polynomial Functions (end behavior, max/min, domain/range, rates of change)

4.7 Transformations of Polynomials

4.2 Algebra of Polynomials through Combinations of Transformations

4.4 Sketching and Factoring Polynomials

4.3 Division of Polynomials (Long/Synthetic) and finding factors/zeros (Remainder Theorem)

4.6 Fundamental Theorem of Algebra

4.5 Finding Complex Roots of a Polynomial Equation

4.8 Even and Odd Functions

4.9 Modeling of Polynomials (finite differences/regression)

**Unit 5-Rational Functions (Chapter 7)**

7.2 Graphs of Basic Rational Functions (Transformations, Domain/Range, Asymptotes, Rate of Change)

7.3 Operations with Rational Expressions (Multiply/Divide)

7.4 Operations with Rational Expressions (Add/Subtract/Simplify Complex Fractions)

7.5 Modeling (Extraneous Roots and Work Problems)

**Midterm**

**Unit 6-Rational Exponents and Radical Functions (Chapter 5)**

5.3 Graphs of Basic Radical (Square Root and Cube) Functions

5.1 Nth Roots and Rational Exponents (solving equations as well)

5.6 Inverse of a Function (linear, quadratic, cubic, rational, square root) and restricted domains

5.2 Properties of Rational Exponents (simplifying expressions with variable in base)

5.4 Solving Radical Equations and Inequalities (Graphically and Algebraically) with Modeling

5.5 Performing Functional Operations (Notation and Multiple Representations)

**Unit 7-Exponential and Logarithmic Functions (Chapter 6)**

6.1 Exponential Growth and Decay Functions

6.4 Graphs of Basic Exponential Functions (Transformations, Domain/Range, Rates of Change)

6.2 Natural Base e (Continuous Growth and rewriting percent growth)

6.3 Logarithms and Logarithmic Functions (with Modeling Average Rate of Change)

6.5 Properties of Logarithms

6.6 Solving Exponential Equations (Newton’s Laws of Heating and Cooling)

6.7 Modeling (Regression and common ratios)

**Unit 8- Sequences and Series (Chapter 8)**

8.1 Defining Sequences and Series (Function Notation, Subscript, Summation, Domain/Range)

8.5 Recursive Rules and Sequences

8.2 Arithmetic Sequences and Series (with Formulas and Modeling)

8.3 Geometric Sequences and Series (with Formulas and Modeling)

**Unit 9 Trigonometric Ratios and Functions (Chapter 9)**

9.1 Right Triangle Trigonometry (the 6 trig ratios)

9.2 Radian Measure and Angles (Arc length)

9.3 Unit Circle and Trig Functions of any angle

9.4 Graphs of Basic Trigonometric Functions (Sine/Cosine, Domain/Range, Max/Min, Period)

9.6 Modeling with Trigonometric Functions

9.7 Using Trigonometric Identities

**Unit 10 Probability (Chapter 10)**

10.1 Sample Spaces and Probability

10.2 Combined Events (Dependent and Independent Events)

10.3 Combined Events

10.4 Disjoint and Mutually Exclusive Events (Venn Diagrams and Two Way Tables)

**Unit 11 Statistics (Chapter 11)**

11.1 Measures of Center Spread (Normal Distribution and the 68-95-99 Rule)

11.2 Data Collection Techniques and using Simulation

11.3 Importance of Random Sampling and Bias

11.5 Margin of Error and Confidence Intervals

11.6 Making Inferences from Experiments