Algebra II Curriculum:

* **8-22/8-26-22** Number sets **N.8**
  + Changing repeating decimals to fractions
  + Solving equations in one variable
* **8-29/9-9-22** Complex numbers **N.7, N.10** 
  + i=√-1
  + Simplify i to any power that is a non-negative integer.
  + Perform operations on complex numbers
    - Addition, Subtract, multiply, distribution.
    - Divide by conjugate multiplication
* **9-12/9-23-22** Recognize terms, factors, coefficients**A.17**
  + Simplify radical expressions
  + Include rationalize a denominator
  + Include complex factors
* **9-26/9-30-22** Solve linear equations and inequalities in one variable including coefficients represented by letters. **A.2**
  + Include absolute values
* **10-3/10-25-22** Linear Functions **F.3**
  + x and y intercepts
  + slope intercept form
  + graphing an equation and inequalities
* **10-26/11-4-22** Polynomial and Polynomial Functions **A.1, A.6, A.8**
  + Recognize
  + Know the degree
  + Fundamental theorem of algebra
  + Y-intercepts
  + Imaginary roots come in pairs (if real coefficients)
  + Perform operations on polynomials
    - Add, Subtract, Multiply
    - Include long division and synthetic
    - Understand and apply remainder theorem
  + Factor Nth degree polynomials using the remainder theorem
* **11-7/11-18-22** Roots or zeros of polynomials **A.7**
  + Real roots and x intercepts
  + Find roots
    - Linear
    - Quadratic
* **11-21/12-9-22** Factoring **A.7**
  + Two terms
    - Sum or difference of squares
    - Common factor
  + Sum and difference of cubes
  + Three terms
    - A=1
    - A>1
  + Grouping with four terms only
    - * Quadratic formula
      * Completing the square
      * Cubic polynomial
    - When root is greater than 2
      * Rational root theorem
* **12-12/12-16-22** Create equations and inequalities in one variable and use to solve problems **F.6, A.12, A.13**
  + Linear
  + Quadratic
  + Simple rational function
* **1-2/1-6-23** Create equations in two variable to use and solve problems  **A.14**
  + Use matrices to solve two equations with two unknowns
* **1-9/1-25-23** Graph Polynomial Equations **N.11, A.5, F.4**
  + Increasing or decreasing
  + Positive or negative
  + Minimum and maximum for a quadratic
  + Symmetry
  + Domain and range
    - Vertical line test
    - Horizontal line test for inverse
* **1-26/2-3/23** Rigid translations of linear and quadratic**A.10**
  + Understand behavior as x approaches ∞ and -∞
  + Find domain and range algebraically
* **2-26/2-17-23** Rational Expressions **A.11**
  + Add, Subtract, and Multiply
  + Solve rational and radical equations in one variable.
  + Address extraneous solutions
  + Graphing a rational equation
  + Domain and range
* **2-20/2-28/23** Introduce literal equations **A.15**
* Know two functions are equal when they intersect. **A.24**
  + Evaluate functions
    - Linear
    - Quadratic
    - Composite Functions
* **3-1/3-7-23** Use equations to represent constraints in linear programming **A.22**
  + Solve systems of equations
  + Use inequalities to solve problems in linear programming
  + Solve systems of equations containing 3 variables using matrices
* **3-8/3-14-23** Exponents **F.1, F.5**
  + Simplify and evaluate expressions with any rational exponent
  + Exponential growth and decay
  + Graph Exponential Function
    - Include domain and range
* **3-15/3-24-23** Logarithms **F.10**
  + Simply and evaluate log expressions
  + Include domain and range
  + Sketch graph
  + Show connection between exponential and logarithm
  + Solve equations involving the unknown as an exponent
* **4-3/4-14-23** Geometric and arithmetic sequence **A.4, F.7**
  + Recognize either
  + Understand arithmetic is linear and geometric is exponential
  + Nth term of arithmetic or geometric series
  + Find the sum of a finite arithmetic or geometric series
  + Use Sigma notation to express sums
* **4-17/5-5-23** Trig Functions **F.9, F.15, F.18, F.19, F.20**
  + Positive and negative angles
  + Degrees to radians
  + Know sin, cos, tan of 0º, 30º,45º,60º,90º
  + Use trig functions to solve triangle problems
    - Find missing side and angle
  + Show Pythagorean theorem identity
    - Distance formula review-generic Pythagorean theorem
  + Look at sine and cosine graphs
    - Understand period and amplitude
* **5-8/5-23-23** Probability **A.9, SP.4, SP.9, SP.10, SP.11**
  + Fundamental Counting Principle
    - Number of ways an event can happen
  + Counting Techniques
    - Combinations and Permutations
    - Mutually and non-mutually exclusive events
    - Independent and dependent events
    - Unions and Intersections
    - Factorial