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