ALGEBRA III---First Nine Weeks **Semester Course**		
Week(s)	Topics & Objectives	Standards
1	UNIT 1 Algebra II Review	• Linear Equations • Finding and Graphing Intercepts • Parent Functions
2	UNIT 1 Algebra II Review	• Trigonometric Functions
3	UNIT 2 Trigonometry	• 30-Use special triangles to determine geometrically the values of sine, cosine, tangent, and use the unit circle to express the values of sine, cosine, and tangent in terms of their values for x, where x is any real number • 31-Use the unit circle to explain symmetry and periodicity of trig functions • 32-Understand that restricting a trig function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed • 33-Use inverse functions to solve trig equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.
4	UNIT 2 Trigonometry	• 34-Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems • 40-Derive the formula for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side • 41-Prove the Law of Sines and Cosines and use them to solve problems • 42-Understand and apply the Law of Sines and Cosines to find unknown measures in right and non-right triangles
5	UNIT 3 Analyzing Functions	• 8-Determine the characteristics of graphs of parent functions • 9-Determine the end behavior of polynomial functions
6	UNIT 3 Analyzing Functions	• 23-Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases • 24-Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available
7	UNIT 4 Polynomial Identities	• 10-Prove polynomial identities and use them to describe numerical relationships • 11-Verify the Binomial Theorem by mathematical induction or by a combinatorial argument • 12-Know and apply the Binomial Theorem for the expansion of (x+y) to the nth

		power in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle
8	UNIT 4 Polynomial Identities	• 13-Write rational expressions in simplest form • 14-Decompose a rational function into partial fractions • 15-Determine asymptotes and holes of rational functions, explain how each was found , and relate these behaviors to continuity
9	UNIT 5 Operations on Expressions, Equations, Inequalities, & Polynomials	• 16-Add, subtract, multiply and divide rational expressions • 17-Solve polynomials and rational inequalities • 18-Find the composite of 2 given functions and find the inverse of a given function
Second Nine Weeks		
Week(s)	Topics & Objectives	Standards
10	UNIT 5 Operations on Expressions, Equations, Inequalities, & Polynomials	• 19-Simplify complex algebraic fractions with and without variable expressions and integer exponents • 20-Find the possible rational roots using the Rational Root Theorem • 21-Find the zeros of a polynomial functions by synthetic division and the Factor Theorem • 22-Graph and solve quadratic inequalities
11	UNIT 6 Transformations	• 35-Graph piecewise defined functions and determine continuity or discontinuities • 36-Describe the attributes of graphs and the general equations of parent functions
12	UNIT 6 Transformations	• 37-Explain the effects of changing the parameters in transformations of functions • 38-Predict the shapes of graphs of exponential, logarithmic, rational, and piecewise functions, and verify the prediction with and without technology • 39-Relate symmetry of the behavior of even and odd functions
13	UNIT 7 Building Functions	• 25-Compose functions • 26-Verify by composition that one function is an inverse of another • 27-Read values of an inverse function from a graph or a table, given that the function has an inverse
14	UNIT 7 Building Functions	• 28-Produce an invertible function from a non-invertible function by restricting the domain • 29-Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents

15	UNIT 8 Probability	• 43-Analyze expressions in summation and factorial notation to solve problems • 44-Prove statements using mathematical induction
16	UNIT 9 Sequences and Series	• 1-Express sequences and series using recursive and explicit formulas • 2-Evaluate and apply formulas for arithmetic and geometric sequences and series • 3-Calculate limits based on convergent and divergent series
17	UNIT 9 Sequences and Series	• 4-Evaluate and apply infinite geometric series • 5-Extend the meaning of exponents to include rational numbers • 6-Simplify expressions with fractional exponents to include converting from radicals • 7-Factor algebraic expressions containing fractional exponents
18	Intro to Calculus	• Overview of limits and derivatives

Third Nine Weeks		
Week(s)	Topics & Objectives	Standards
19		
20		
21		
22		

23		
24		
25		
26		
27		
Fourth Nine Weeks		
Week(s)	Topics & Objectives	Standards
28		
29		
30		
31		

32		
33		
34		
35		
36		