ALGEBRA II, PART II
GRADE LEVELS 10-12

#	Lesson	Lesson Content
1	Roots and Radicals	Review of square roots and perfect squares and racicals; solving problems containing radicals; inverse of squaring numbers, irrational numbers, principal square roots
2	Real Number Properties 1	Multiplication and division of radicals, simplifying radical expressions, radical exponents, irrational numbers, product theory of rationals
3	Real Number Properties 2	Addition and subtraction of radicals, like radicals and like terms, using the distributive property to solve problems
4	Rational Exponents	Using addition, subtraction, multiplication, and division and combinations of operations to solve problems with rational exponents
5	Equations	Identify radicals and solving equations with radicals
6	Imaginary Numbers	Identification and problem solving using imaginary numbers
7	Complex Numbers 1	Solving addition and subtraction problems of complex pure and imaginary numbers
8	Complex Numbers 2	Multiplication and division of complex numers, using the commutative property to solve problems, the FOIL method of factoring and solving
9	Quadratic Equations 1	Solving quadratic equations by completing the square, solving and factoring, completing the square to solve equations
10	Quadratic Equations 2	Using the quadratic formula to solve problems, check for reasonableness of all solutions
11	The Discriminant	Identifying and evaluating the discriminant of a quadratic equations; using the discriminant to determine the number of solutions to an equations
12	Roots	Equations involving the sum and products of roots and their connection to the coordinate plane
13	Quadratic Equations 3	Rewriting equations in quadratic form to solve
14	Problem Solving	Solving problems using quadratic equations
15	Quadratic Relations	Identifying and illustrating distance and midpoint, solving problems with number lines, absolute value, the Pythagorean Theorem
16	Parabolas	Characteristics and definition of parabola
17	Graphing Parabola	Plotting parabola on the coordinate plane
18	Circles	Circle characteristics; solving problems involving identification of circle parts and formulas
19	Ellipses	Characteristics or ellipses; plotting ellipses on the coordinate plane, identification and illustration of fixed points
20	Hyperbola	Characteristics or hyperbola, visual illustrations of hyperbolas, intersection of planes and cones, identifying the difference between ellipses and hyperbola
21	Graphing Relations	Identifying relations; identifying functions; graphing quadratic relations and inequalities
22	Graphing Inequalities	Intersections of graphs of quadratic relations, graphing conic inequalities and intersections
23	Variations	Inverse and joint variations of linear functions; combined variation
24	Exponential Functions	Different strategies for simplifying and solving equations and expressions with rational positive and negative exponents
25	Inverse Functions	Ordered pairs, coordinates, the domain, identification and illustrations of the inverse function
26	Logarithmic Functions	Identification and explanation of logarithmic functions, the exponential/logarithmic scale, definition and examples of logarithms
27	Exponential Equations	Definition and examples of exponential equations, solving problems using the graphing calculator, properties of logarithms, significant digits, compound interest problems

28	Arithmetic Sequence	Definition and examples of arithmetic sequences, different of numbers, finite sequences of numbers
29	Arithmetic Series	Definition and examples of arithmetic series in real world situations, identification of sigma, solving problems using arithmetic series
30	Geometric Sequence	Definition and examples of arithmetic sequence, geometric progression, terms of geometric sequences
31	Geometric Series	Definition and examples of geometric series, formulas for solving problems with geometric series
32	Infinite Geometric Series	Examples and definition of common ratios, formulas, convergent geometric series, solving problems with geometric series
33	Binomial Theorem	Identification of patterns and integral powers, finite series, coefficients, variable powers, factorials, solving factorial problems