Cord Algebra 2, Mathematics in Context, 1st edition
correlation to West Virginia Algebra II Content Standards and Objectives

Indicators	**Cord Algebra 2 Lesson(s)**
Standard M.S.A2.2: Through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics, students will • demonstrate understanding of patterns, relations and functions, • represent and analyze mathematical situations and structures using algebraic symbols, • use mathematical models to represent and understand quantitative relationships, and • analyze change in various contexts.	
M.O.A2.2.1 determine equations of lines including parallel, perpendicular, vertical and horizontal lines, and compare and contrast the properties of these equations.	1.4, 1.5
M.O.A2.2.2 factor higher order polynomials by applying various methods including factoring by grouping and the sum and difference of two cubes; analyze and describe the relationship between the factored form and the graphical representation.	6.4, 9.2, 9.3, 9.4
M.O.A2.2.3 define complex numbers, simplify powers of 'i', perform basic operations with complex numbers, and give answers as complex numbers in simplest form.	5.5
M.O.A2.2.4 simplify expressions involving radicals and fractional exponents, convert between the two forms, and solve equations containing radicals and exponents.	5.2, 5.3, 5.4
M.O.A2.2.5 solve quadratic equations over the set of complex numbers: apply the techniques of factoring, completing the square, and the quadratic formula; use the discriminate to determine the number and nature of the roots; identify the maxima and minima; use words, graphs, tables, and equations to generate and analyze solutions to practical problems.	6.1, 6.2, 6.3, 6.4, 6.5, 6.6
M.O.A2.2.6 develop and use the appropriate field properties of matrices by adding, subtracting, and multiplying; solve a system of linear equations using matrices; and apply skills toward solving practical problems.	3.1, 3.2, 3.3, 3.4, 3.5

M.O.A2.2.7 define a function and find its zeros; express the domain and range using interval notation; find the inverse of a function; find the value of a function for a given element in its domain; and perform basic operations on functions including composition of functions.	4.1, 4.2, 4.3, 4.4
M.O.A2.2.8 analyze families of functions and their transformations; recognize linear, quadratic, radical, absolute value, step, piece-wise, and exponential functions; analyze connections among words, graphs, tables and equations when solving practical problems with and without technology.	4.4, 4.5
M.O.A2.2.9 solve quadratic inequalities, graph their solution sets, and express solutions using interval notation.	not covered
M.O.A2.2.10 solve and graph the solution set of systems of linear inequalities in two variables by finding the maximum or minimum values of a function over the feasible region using linear programming techniques.	2.3
M.O.A2.2.11 solve practical problems involving direct, inverse and joint variation.	10.6
M.O.A2.2.12 analyze the conic sections; identify and sketch the graphs of a parabola, circle, ellipse, and hyperbola and convert between graphs and equations.	7.2, 7.3, 7.4, 7.5, 7.6
M.O.A2.2.13 solve absolute value inequalities graphically, numerically and algebraically and express the solution set in interval notation.	1.3
M.O.A2.2.14 define a logarithmic function, transform between exponential and logarithmic forms, and apply the basic properties of logarithms to simplify or expand an expression.	8.2, 8.3

M.O.A2.2.15 identify a real life situation that exhibits characteristics of change that can be modeled by a quadratic equations; pose a questions; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize and analyze related data; extend the nature of collected, discrete data to that of a continuous function that describes the known data set; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra (with and without technology).	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, Chapter 6 Math Applications (pp. 277-281)
M.O.A2.2.16 describe and illustrate how patterns and sequences are used to develop recursive and closed form equations; analyze and describe characteristics of each form.	11.1, 11.2, 11.3, 11.4, 11.5