Public Schools of North Carolina
State Board of Education | Department of Public Instruction

North Carolina Extended Common Core State Standards
Mathematics High School

The *Alternate Achievement Standards for Students With the Most Significant Cognitive Disabilities Non-Regulatory Guidance* states, "…materials should show a clear link to the content standards for the grade in which the student is enrolled, although the grade-level content may be reduced in complexity or modified to reflect pre-requisite skills. Throughout the Standards descriptors such as, describe, count, identify, etc, should be interpreted to mean that the students will be taught and tested according to their mode of communication.

Algebra 1 A and B Number and Quantity: The Real Number System				
Common Core State Standards		**Essence**	**Extended Common Core**	
Extend the properties of exponents to rational exponents.		**Extending the base ten system to tenths and hundredths place**	**Extend the properties of the base ten system (limit to tenths and hundredths).**	
Cluster	1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)^3}$ to hold, so $(5^{1/3})^3$ must equal 5.* 2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.		**Cluster**	1. Identify decimal values. 2. Compare decimal values. 3. Order decimal values.
Use properties of rational and irrational numbers.		**Computing with base ten system to tenths and hundredths place**	**Use properties of the base ten system (limit to tenths and hundredths).**	
	3. Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.			4. Calculate the sum of decimal values. 5. Calculate the difference of decimal values.

Algebra 1 A and B Number and Quantity: Quantity				
Common Core State Standards		**Essence**	**Extended Common Core**	
Reason quantitatively and use units to solve problems.		**Use unit rate to identify quantities**	**Reason quantitatively and use units to solve problems.**	
Cluster	1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. 2. Define appropriate quantities for the purpose of descriptive modeling. 3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.		**Cluster**	1. Interpret the unit rate from a graph of equivalent ratios using scales greater than 1 on the *y* axis (e.g., speed= miles per hour).

Algebra 1 A and B Algebra: Seeing Structure in Expressions				
Common Core State Standards		**Essence**	**Extended Common Core**	
Write expressions in equivalent forms to solve problems		**Equivalent expressions**	**Use equivalent expressions to solve problems.**	
Cluster	1. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression* 1.15^t *can be rewritten as* $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ *to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.* 2. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.*		**Cluster**	1. Identify the equivalent addition expression from a multiplication expression (e.g., given *3r* student identifies equivalent *r+r+r*). 2. Evaluate an algebraic expression (If r=2, then the value of 4r is 4 x2=8).

Algebra 1 A and B Algebra: Creating Equations				
Common Core State Standards		**Essence**	**Extended Common Core**	
Create equations that describe numbers or relationships.		**Understanding inequalities**	**Use inequalities to describe numbers and relationships.**	
Cluster	1. Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.* 2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. 3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.* 4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.*		**Cluster**	1. Use inequalities to describe the relationship between two quantities (less than, <, greater than, >). 2. Identify non-negative integers that would make an inequality true (e.g., *x* is less than 10, so *x* could be equal to 0,1,2,…9).

Algebra 1 A and B Algebra: Reasoning with Equations and Inequalities				
Common Core State Standards		**Essence**	**Extended Common Core**	
Solve equations and inequalities in one variable.		**Solve equations and inequalities**	**Solve equations and inequalities in one variable.**	
Cluster	1. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. 2. Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.		**Cluster**	1. Use equations to solve problems using addition and subtraction with decimals when a part is unknown (e.g., a can of soda cost \$0.75 and John has \$0.50 how much more money does he need?). 2. Use inequalities to solve problems using addition and subtraction when a part is unknown (e.g. 3 + x > 8).