MATHEMATICS

Math A (Pre-Algebra)

Grades 9–12		
NUMBER SENSE		
1. Students know the properties of and compute with rational numbers expressed in a variety of forms.	**2. Students use exponents, powers, and roots and use exponents in working with fractions.**	**3. Students understand and use such operations as taking the opposite, reciprocal, and raising to a power. This includes the understanding and use of the rules of exponents.**
1.1 add, subtract, multiply and divide rational numbers, integers, fractions and decimals and take rational numbers to whole number powers	2.1 understand negative whole number exponents; multiply and divide expressions involving exponents with a common base	
1.2 find a given percent of a number, and what percent of one number is another number	2.2 add and subtract fractions using factoring to find common denominators	
1.3 solve problems that involve discounts, markups, commissions, profit and simple compound interest	2.3 multiply, divide, and simplify fractions using exponent rules	
1.4 calculate unit prices		
MATHEMATICAL REASONING		
1. Students make decisions about how to approach problems.	**2. Students use strategies, skills and concepts in finding solutions.**	
1.1 solve various logic problems	2.1 use estimation to verify the reasonableness of calculated results	
	2.2 apply strategies and results from simpler problems to more complex problems	

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ALGEBRA AND FUNCTIONS
 	
1. Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities and their graphs.
 	
    1.1 use variables and appropriate operations to write an expression, equation, inequality, or system of equations or inequalities which represent a verbal description (e.g., three less than a number, half as large as area A)
 	
    1.2 use order of operations correctly to evaluate algebraic expressions such as $3(2x + 5)^2$
 	
    1.3 use algebraic terminology correctly (e.g., variable, equation, term, coefficient, inequality, expression, constant)
	2. Students evaluate expressions involving integer powers and simple roots.
	
	    2.1 simplify and evaluate expressions that include exponents
	
	    2.2 multiply and divide monomials; extend the process of taking powers and extracting roots to monomials, when the latter results in a monomial with an integer exponent
		3. Students solve simple linear equations and inequalities over the rational numbers.
		
		    3.1 solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution(s) in terms of the context from which they arose and verify the reasonableness of the results
		
		    3.2 graph open sentences

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MEASUREMENT AND GEOMETRY
 	
1. Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems.
 	
    1.1 compare weights, capacities, geometric measures, times and temperatures within and between measurement systems
 	
    1.2 construct and read scale drawings and models
	2. Students compute the perimeter, area and volume of common geometric objects and use these to find measures of less common objects.	**3. Students are familiar with both metric and English units.**

STATISTICS, DATA ANALYSIS AND PROBABILITY
 	
1. Students collect, organize and represent data sets that have one or more variables and identify relationships among variables within a data set both manually and by using an electronic spreadsheet program.
 	
    1.1 know various forms of display for data sets, including a stem-and-leaf; use them to display data
 	
    1.2 find mean, median and mode of a distribution		