NRS Level 3 GE: 4.0 – 5.9	NRS Level 4 GE: 6.0 – 8.9
CCR.MA.ABE.6. Expressions and Equations	
3.1 Utilize and extend previous understandings of arithmetic to algebraic expressions. a) Write and evaluate numerical expressions (mathematical phrase using numbers, letters and operations) involving whole-number exponents (power). b) Write, read, and evaluate expressions in which letters stand for numbers. • Write expressions that record operations with numbers and with letters standing for numbers. • Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, and coefficient). • View one or more parts of an expression as a single entity. • Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. c) Perform arithmetic operations in the conventional order when there are no parentheses to specify a particular order (order of operations). d) Apply the properties of operations to generate equivalent expressions. e) Identify when two expressions are equivalent, regardless of which value is substituted into them.	**4.1 Use properties of operations to generate equivalent expressions.** a) Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. b) Describe how rewriting an expression in different forms in a problem can show how the quantities are related.
3.2 Reason and solve one-variable equations and inequalities. a) Solve an equation or inequality as a process of answering a question: • Which values, if any, make the equation or inequality true? • Use substitution to determine an equation or inequality true. b) Use variables to represent numbers and write expressions. • Conclude that a variable can represent an unknown number. c) Solve mathematical and real-world problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	**4.2 Solve mathematical and real-life problems using numerical and algebraic expressions and equations**. a) Solve multi-step mathematical and real-life problems with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. • Apply properties of operations to calculate with numbers in any form. • Convert between forms as appropriate. • Assess the reasonableness of answers using mental computation and estimation strategies. b) Use variables to represent quantities in a problem, and construct simple equations and inequalities to solve problems.

d) Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition. • Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions on number line diagrams.	• Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) r$, where p, q, and r are specific rational numbers. • Solve equations of these forms fluently. • Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. • Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. • Graph the solution set of the inequality and interpret it in the context of the problem.
3.3 Represent and analyze quantitative relationships between dependent and independent variables. a) Use variables to represent two quantities in a real-world problem that change in relationship to one another. b) Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. c) Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	**4.3 Work with integer exponents and radicals** (an expression that has a square root and/or cube root)**.** a) Know and apply the properties of integer **(**a number with no fractional part) exponents to generate equivalent numerical expressions. b) Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. • Evaluate square roots of small perfect squares and cube roots of small perfect cubes. • Know that $\sqrt{2}$ is irrational. c) Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. d) Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. • Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities such as using millimeters per year for seafloor spreading. • Interpret scientific notation that has been generated by technology.
	4.4 Build the connections between proportional relationships, lines, and linear equations. a) Graph proportional relationships, interpreting the unit rate as the slope of the graph. b) Compare two different proportional relationships represented in different ways.
	4.5 Analyze and solve linear equations and pairs of simultaneous linear equations. a) Solve linear equations (makes a straight line when graphed) with one variable.

	• Give examples of linear equations in one variable with one solution, many solutions, or no solutions. • Show these examples by successively transforming the equation into simpler forms, until an equivalent equation of the form x=a, a=a, or a=b results (where a and b are different numbers). • Solve linear equations with rational number coefficients (number used to multiply a variable), including equations that require expanding expressions, using the distributive property, and collecting like terms. b) Analyze and solve pairs of simultaneous linear equations. • Explain that solutions to a system of two linear equations with two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. • Solve systems of two linear equations with two variables algebraically, and estimate solutions by graphing the equations. • Solve simple cases by inspection. • Solve mathematical and real-world problems leading to two linear equations with two variables.
NRS Level 3 **GE: 4.0 – 5.9**	**NRS Level 4** **GE: 6.0 – 8.9**
CCR.MA.ABE.7. **The Number System**	
3.1 Compute fluently with multi-digit numbers and find common factors and multiples. a) Fluently divide multi-digit numbers. b) Fluently add, subtract, multiply, and divide multi-digit decimals. c) Find the greatest common factor of two numbers less than or equal to 100. d) Find the least common multiple of two numbers less than or equal to 12. e) Use the distributive property to express a sum of two numbers 1–100 with a common factor as a multiple of the two numbers with no common factor.	**4.1 Apply and extend previous understandings of numbers to the system of rational numbers.** a) Explain positive and negative numbers used to describe quantities having opposite directions or values (temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge). • Use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. b) Illustrate a rational number as a point on the number line by extending number line diagrams and coordinate axis/axes to represent negative number coordinates. • Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line.