

Skills and Concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Expressions and Equations</p> <ul style="list-style-type: none"> Solves real-world problems involving rate of pay Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) Uses the distributive property Calculates the value of a power (e.g., $2^3 = 8$) Solves problems involving simple interest rates with the formula Uses a table of input/output values to represent patterns Uses basic operations on algebraic expressions (substituting for unknowns) Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties Uses basic operations on algebraic expressions (expanding - monomial by a binomial) Demonstrates an understanding of properties (e.g., commutative, associative, distributive, properties of 0) Writes equivalent forms of algebraic expressions (e.g., $(x + 3)/2 = x/2 + 3/2$) Represents relationships of quantities in the form of an expression Uses basic operations on algebraic expressions (uses correct order of operations) Expresses a simple linear equation from a contextual situation Solves open sentences with calculations on both sides of the sentence Solves 2-step open sentences with missing factors Solves 1-step linear equations Solves 2-step linear equations Solves linear equations with decimals Solves linear equations with integers Writes equivalent forms of algebraic equations using addition and subtraction Solves open sentences with decimals Solves linear equations in a real-world context using a given formula Applies algebraic methods to solve theoretical problems Applies algebraic methods to solve real-world problems Uses graphs to solve simple systems of linear equations Applies systems-of-linear-equations methods to solve theoretical problems Describes the relationship of a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step) Solves real-world problems using reasoning strategies 	<p>Expressions and Equations</p> <ul style="list-style-type: none"> Evaluates numerical expressions using the order of operations (whole numbers only) Evaluates expressions using the order of operations, including exponents (whole numbers only) Solves real-world problems involving rate of pay Solves real-world problems involving rate of pay with time and a half Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) Evaluates numerical expressions using the order of operations (using integers) Divides rational expressions in a/b form Uses the distributive property Calculates the power of a number (e.g., $8 = 2^3$) Evaluates expressions containing powers (e.g., $3^2 \times 2^3$) Applies rules for multiplying and dividing powers Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Uses expressions to represent situations that involve variable quantities with exponents Uses basic operations on algebraic expressions (substituting for unknowns) Uses basic operations on algebraic expressions (substituting for unknown exponents) Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties Uses basic operations on algebraic expressions (combining like terms) Uses basic operations on algebraic expressions (expanding - monomial by a binomial) Writes equivalent forms of algebraic expressions (e.g., $(x + 3)/2 = x/2 + 3/2$) Represents relationships of quantities in the form of an expression Uses basic operations on algebraic expressions (uses correct order of operations) Expresses a simple linear equation from a contextual situation Solves 2-step open sentences with missing factors (variables on both sides of the sentence) Solves 2-step linear equations Solves linear equations with integers Solves linear equations with fractions 	<p>Expressions and Equations</p> <ul style="list-style-type: none"> Evaluates expressions using the order of operations, including exponents (whole numbers only) Solves real-world problems involving rate of pay with time and a half Evaluates numerical expressions using the order of operations (using integers) Evaluates expressions using the order of operations, including exponents (using integers) Solves problems involving simple interest rates without the formula Simplifies rational expressions with scientific notation Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Uses expressions to represent situations that involve variable quantities with exponents Evaluates expressions by substituting with rational numbers Simplifies polynomial expressions Multiplies binomials Factors trinomials in the form $x^2 + bx + c$ Factors polynomials using difference of squares Uses basic operations on algebraic expressions (uses correct order of operations) Uses linear equations to represent situations involving variable quantities Solves 2-step open sentences with missing factors (variables on both sides of the sentence) Solves linear equations with fractions Solves linear equations using rational numbers Solves open sentences with fractions Applies algebraic methods to solve real-world problems Applies algebraic methods to solve a variety of real-world and theoretical problems Solves problems involving consecutive numbers Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) Uses algebraic methods to solve systems of linear equations Solves simple one-step inequality open sentences Solves single variable linear inequalities with the variable in only one member using number lines Describes the relationship of a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

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Expressions and Equations <ul style="list-style-type: none"> • Uses powers to represent 10, 100, 1000, 10,000, and 100,000 • Writes a number expressed in scientific notation in standard form 	Expressions and Equations <ul style="list-style-type: none"> • Solves linear equations using rational numbers • Applies algebraic methods to solve real-world problems • Determines slope from a linear equation • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Uses graphs to solve simple systems of linear equations • Solves simple one-step inequality open sentences • Expresses a simple linear inequality from a contextual situation • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step) • Solves simple linear inequalities using graphs • Solves problems involving capacity in the metric system and converts to larger or smaller units • Converts from Celsius to Fahrenheit, given conversion ratios • Determines the prime factorization of a number • Writes a whole number in scientific notation 	Expressions and Equations <ul style="list-style-type: none"> • Solves linear inequalities using graphs • Solves complex real-world problems involving capacity • Solves problems involving capacity in the metric system and converts to larger or smaller units • Converts from Celsius to Fahrenheit, given conversion ratios • Uses reasoning strategies to solve problems • Determines the prime factorization of a number using powers • Writes a whole number in scientific notation • Writes a decimal in scientific notation
Use Functions to Model Relationships <ul style="list-style-type: none"> • Extends a growing pattern of triangular numbers, defined by objects or diagrams • Represents geometric sequences using written descriptions in recursive terms (present term, next term) • Solves problems involving simple functions • Looks for a growing pattern to solve a problem 	Use Functions to Model Relationships <ul style="list-style-type: none"> • Recognizes and extends arithmetic sequences (predicts nth term) • Represents geometric sequences using written descriptions in recursive terms (present term, next term) • Recognizes and extends the Fibonacci sequence • Writes linear equations when given ordered pairs • Writes the equation of a horizontal or vertical line when given the graph of the line • Represents real-world functions using an equation • Uses mapping diagrams to represent functions • Uses tables to determine function equations • Identifies the graph type, given equations of linear and nonlinear functions • Solves problems involving simple functions • Solves problems involving complex functions • Interprets data given in line graphs to solve problems 	Use Functions to Model Relationships <ul style="list-style-type: none"> • Represents growing arithmetic patterns using algebraic expressions or equations • Writes linear equations when given ordered pairs • Writes the equation of a horizontal or vertical line when given the graph of the line • Determines x- or y-intercept of a given linear equation • Identifies and describes situations with varying rates of change • Solves quadratic equations using concrete models and tables • Uses tables to determine function equations • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation • Determines the minimum and maximum of a quadratic function • Analyzes the properties and characteristics of exponential functions • Determines the x- and/or y-intercept of an equation of a function • Performs operations on functions • Solves problems involving complex functions • Determines the domain and range of a function

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<i>New Vocabulary:</i> algebra, net, reflexive, short, transitive	<i>New Vocabulary:</i> algebraic sentence, depreciate, equation of a line, is less than, regression equation, time-and-a-half	<i>New Vocabulary:</i> polynomial, solution set, y-intercept
<i>New Signs and Symbols:</i> < less than, m meter/metre, repeating decimal overbar, Δ triangle	<i>New Signs and Symbols:</i> \leq , \geq , () ordered pair, $f(x)$ the value of the function f at x , > greater than, \gg greater than, \geq greater than or equal to, km kilometer/kilometre, \leq less than or equal to, \bullet multiplication symbol (dot), - subtraction	<i>New Signs and Symbols:</i> % percent

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