DesCartes
(Combined)

Subject: Mathematics
Goal: Algebraic Relationships

Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: Below 171

Skills and Concepts to Develop Below 171	Skills and Concepts to Introduce 171 - 180
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**
• Extends repeating patterns - geometric shapes • Completes a growing arithmetic pattern by naming missing members	• Extends repeating patterns - geometric shapes • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern by naming missing members
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**
• Solves basic-facts open sentences - addition and subtraction	• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic-facts open sentences - addition and subtraction • Solves linear equations with basic facts - 1-step addition using a letter for the variable*
Properties	**Properties**
	• Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding that vertical and horizontal representations are equivalent
New Vocabulary: addend	*New Vocabulary:* fact family, multiply, rate, subtract, whole number
New Signs and Symbols: + addition, = is equal to, − subtraction, □ variable	*New Signs and Symbols:* $ dollar sign, × multiplication

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Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 171 - 180

Skills and Concepts to Enhance Below 171	Skills and Concepts to Develop 171 - 180	Skills and Concepts to Introduce 181 - 190
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Extends repeating patterns - geometric shapes • Completes a growing arithmetic pattern by naming missing members	• Extends repeating patterns - geometric shapes • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern by naming missing members	• Determines whether a set of objects has an odd or even number of elements • Distinguishes between odd and even numbers • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern using models by identifying the missing members* • Completes arithmetic growth patterns in number tables by identifying the missing elements • Extends a decreasing arithmetic patterns* • Applies the rule to determine which set of letters is not like the other sets - other patterns*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Solves basic-facts open sentences - addition and subtraction	• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic-facts open sentences - addition and subtraction • Solves linear equations with basic facts - 1-step addition using a letter for the variable*	• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves linear equations with basic facts - 1-step addition using a letter for the variable* • Solves 1-step open sentences with missing addends (numbers 100 and under)
Properties	**Properties**	**Properties**
	• Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding that vertical and horizontal representations are equivalent	• Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the inverse relationship between multiplication and division
New Vocabulary: addend	*New Vocabulary:* fact family, multiply, rate, subtract, whole number	*New Vocabulary:* even number, factor, odd number, symmetrical
New Signs and Symbols: + addition, = is equal to, − subtraction, □ variable	*New Signs and Symbols:* $ dollar sign, × multiplication	*New Signs and Symbols:* { } set notation, ÷ division

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Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 181 - 190

Skills and Concepts to Enhance 171 - 180	Skills and Concepts to Develop 181 - 190	Skills and Concepts to Introduce 191 - 200
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Extends repeating patterns - geometric shapes • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern by naming missing members	• Determines whether a set of objects has an odd or even number of elements • Distinguishes between odd and even numbers • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern using models by identifying the missing members* • Completes arithmetic growth patterns in number tables by identifying the missing elements • Extends a decreasing arithmetic patterns* • Applies the rule to determine which set of letters is not like the other sets - other patterns*	• Looks for a simple linear pattern in a table to solve a problem • Distinguishes between odd and even numbers • Extends a growing arithmetic pattern, defined by objects or diagrams* • Completes a growing arithmetic pattern using models by identifying the missing members* • Extends a decreasing arithmetic patterns* • Extends patterns formed by letters*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic-facts open sentences - addition and subtraction • Solves linear equations with basic facts - 1-step addition using a letter for the variable*	• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves linear equations with basic facts - 1-step addition using a letter for the variable* • Solves 1-step open sentences with missing addends (numbers 100 and under)	• Determines the operation needed from a simple problem* • Determines the operation needed to solve a real-world problem • Translates from a diagram to an expression or equation* • Translates a 1-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves complex open linear sentences using diagrams and models (e.g., using balances)* • Solves 1-step open sentences with missing addends (numbers 100 and under) • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under)*

Properties	Properties	Properties
• Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding that vertical and horizontal representations are equivalent	• Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the inverse relationship between multiplication and division	• Evaluates numerical expressions using grouping symbols (whole numbers only) • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the multiplicative property of 1 (identity) • Solves 2-step open sentences with missing addends*
New Vocabulary: fact family, multiply, rate, subtract, whole number	*New Vocabulary:* even number, factor, odd number, symmetrical	*New Vocabulary:* operation, rename, zero
New Signs and Symbols: $ dollar sign, × multiplication	*New Signs and Symbols:* { } set notation, ÷ division	*New Signs and Symbols:* ( ) order of operations, ¢ cent sign, > greater than, < less than

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Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 191 - 200

Skills and Concepts to Enhance 181 - 190	Skills and Concepts to Develop 191 - 200	Skills and Concepts to Introduce 201 - 210
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Determines whether a set of objects has an odd or even number of elements • Distinguishes between odd and even numbers • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern using models by identifying the missing members* • Completes arithmetic growth patterns in number tables by identifying the missing elements • Extends a decreasing arithmetic patterns* • Applies the rule to determine which set of letters is not like the other sets - other patterns*	• Looks for a simple linear pattern in a table to solve a problem • Distinguishes between odd and even numbers • Extends a growing arithmetic pattern, defined by objects or diagrams* • Completes a growing arithmetic pattern using models by identifying the missing members* • Extends a decreasing arithmetic patterns* • Extends patterns formed by letters*	• Looks for a linear pattern to solve a problem • Looks for a repeating pattern to solve a problem* • Extends a growing arithmetic pattern, defined by objects or diagrams* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Extends a pattern formed by rotating a geometric figure • Uses mapping diagrams to represent functions*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves linear equations with basic facts - 1-step addition using a letter for the variable* • Solves 1-step open sentences with missing addends (numbers 100 and under)	• Determines the operation needed from a simple problem* • Determines the operation needed to solve a real-world problem • Translates from a diagram to an expression or equation* • Translates a 1-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves complex open linear sentences using diagrams and models (e.g., using balances)* • Solves 1-step open sentences with missing addends (numbers 100 and under) • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under)*	• Writes a number sentence for a simple problem solving situation (analysis) • Determines the operation needed to solve a real-world problem • Translates a number sentence to a real-world situation* • Translates a 1-step problem to a symbolic expression or equation • Translates a 2-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Describes a realistic situation using information given in a linear equation* • Solves complex open linear sentences using diagrams and models (e.g., using balances)* • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors

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Properties	Properties	Properties
		(numbers 100 and under)*
• Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the inverse relationship between multiplication and division	• Evaluates numerical expressions using grouping symbols (whole numbers only) • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the multiplicative property of 1 (identity) • Solves 2-step open sentences with missing addends*	• Evaluates numerical expressions using grouping symbols (whole numbers only) • Evaluates a numerical expression involving more than one operation* • Demonstrates an understanding of the associative property of addition* • Demonstrates an understanding of the commutative property of addition • Demonstrates an understanding of the zero property of addition (identity) • Demonstrates an understanding of symmetric property applied to basic addition and subtraction facts (e.g., 10 = 2 + 8 is the same as 2 + 8 = 10 or 7 = 10 - 3 is the same as 10 - 3 = 7)* • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of symmetric property applied to multiplication (e.g., 8 x 4 = 32 is the same as 32 = 8 x 4)* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Solves 2-step open sentences with missing addends* • Solves open sentences with basic-facts calculations on both sides of the sentence
New Vocabulary: even number, factor, odd number, symmetrical	*New Vocabulary:* operation, rename, zero	*New Vocabulary:* commutative, inverse operation, mathematical statement, minimum, ordered pair
New Signs and Symbols: { } set notation, ÷ division	*New Signs and Symbols:* ( ) order of operations, ¢ cent sign, > greater than, < less than	*New Signs and Symbols:* ( ) ordered pair, – negative number, + positive number, = is equal to

Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 201 - 210

Skills and Concepts to Enhance 191 - 200	Skills and Concepts to Develop 201 - 210	Skills and Concepts to Introduce 211 - 220
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Looks for a simple linear pattern in a table to solve a problem • Distinguishes between odd and even numbers • Extends a growing arithmetic pattern, defined by objects or diagrams* • Completes a growing arithmetic pattern using models by identifying the missing members* • Extends a decreasing arithmetic patterns* • Extends patterns formed by letters*	• Looks for a linear pattern to solve a problem • Looks for a repeating pattern to solve a problem* • Extends a growing arithmetic pattern, defined by objects or diagrams* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Extends a pattern formed by rotating a geometric figure • Uses mapping diagrams to represent functions*	• Looks for a growing pattern to solve a problem • Recognizes characteristics of odd and even numbers • Extends a repeating pattern of geometric shapes in a grid* • Extends a growing geometric pattern - using numbers* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends, or completes, growing patterns defined by equations or number facts • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Identifies rules and applies them to new patterns • Determines the rule and completes a simple function machine output* • Uses mapping diagrams to represent functions* • Solves problems involving simple functions*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Determines the operation needed from a simple problem* • Determines the operation needed to solve a real-world problem • Translates from a diagram to an expression or equation* • Translates a 1-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves complex open linear sentences using diagrams and models (e.g., using balances)* • Solves 1-step open sentences with missing addends (numbers 100 and under)	• Writes a number sentence for a simple problem solving situation (analysis) • Determines the operation needed to solve a real-world problem • Translates a number sentence to a real-world situation* • Translates a 1-step problem to a symbolic expression or equation • Translates a 2-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Describes a realistic situation using information given in a linear equation*	• Translates a 2-step problem to a symbolic expression or equation • Determines the operation needed from a complex problem* • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Solves simple open sentences with missing factors (numbers over 100) • Solves 1-step linear equations • Applies algebraic methods to solve theoretical problems

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• Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under)*	• Solves complex open linear sentences using diagrams and models (e.g., using balances)* • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under)*	
Properties	**Properties**	**Properties**
• Evaluates numerical expressions using grouping symbols (whole numbers only) • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the multiplicative property of 1 (identity) • Solves 2-step open sentences with missing addends*	• Evaluates numerical expressions using grouping symbols (whole numbers only) • Evaluates a numerical expression involving more than one operation* • Demonstrates an understanding of the associative property of addition* • Demonstrates an understanding of the commutative property of addition • Demonstrates an understanding of the zero property of addition (identity) • Demonstrates an understanding of symmetric property applied to basic addition and subtraction facts (e.g., 10 = 2 + 8 is the same as 2 + 8 = 10 or 7 = 10 - 3 is the same as 10 - 3 = 7)* • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of symmetric property applied to multiplication (e.g., 8 x 4 = 32 is the same as 32 = 8 x 4)* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Solves 2-step open sentences with missing addends* • Solves open sentences with basic-facts calculations on both sides of the sentence	• Evaluates a numerical expression involving more than one operation* • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the associative property of multiplication • Demonstrates an understanding of the distributive property of multiplication by decomposing a term* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Demonstrates an understanding that division by 0 is undefined* • Solves open sentences using the distributive property • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors
New Vocabulary: operation, rename, zero	*New Vocabulary:* commutative, inverse operation, mathematical statement, minimum, ordered pair	*New Vocabulary:* high, negative, positive, proof, triple
New Signs and Symbols: ( ) order of operations, ¢ cent sign, > greater than, < less than	*New Signs and Symbols:* ( ) ordered pair, − negative number, + positive number, = is equal to	*New Signs and Symbols:* a.m., $ dollar sign, °F degrees Fahrenheit, ? next in sequence

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Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 211 - 220

Skills and Concepts to Enhance 201 - 210	Skills and Concepts to Develop 211 - 220	Skills and Concepts to Introduce 221 - 230
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Looks for a linear pattern to solve a problem • Looks for a repeating pattern to solve a problem* • Extends a growing arithmetic pattern, defined by objects or diagrams* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Extends a pattern formed by rotating a geometric figure • Uses mapping diagrams to represent functions*	• Looks for a growing pattern to solve a problem • Recognizes characteristics of odd and even numbers • Extends a repeating pattern of geometric shapes in a grid* • Extends a growing geometric pattern - using numbers* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends, or completes, growing patterns defined by equations or number facts • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Identifies rules and applies them to new patterns • Determines the rule and completes a simple function machine output* • Uses mapping diagrams to represent functions* • Solves problems involving simple functions*	• Looks for a growing pattern to solve a problem • Recognizes characteristics of odd and even numbers • Extends a growing pattern of triangular numbers, defined by objects or diagrams • Uses mapping diagrams to represent functions* • Completes a function table according to a rule* • Investigates and describes functional relationships of geometric figures (e.g., area is a function of the radius)* • Solves problems involving simple functions*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Writes a number sentence for a simple problem solving situation (analysis) • Determines the operation needed to solve a real-world problem • Translates a number sentence to a real-world situation* • Translates a 1-step problem to a symbolic expression or equation • Translates a 2-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Describes a realistic situation using information given in a linear equation*	• Translates a 2-step problem to a symbolic expression or equation • Determines the operation needed from a complex problem* • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Solves simple open sentences with missing factors (numbers over 100) • Solves 1-step linear equations • Applies algebraic methods to solve theoretical problems	• Translates a problem to a symbolic expression or equation (analysis)* • Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation* • 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 1-step linear equations • Solves 2-step linear equations* • Solves linear equations with decimals*

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• Solves complex open linear sentences using diagrams and models (e.g., using balances)* • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under)*		• Solves linear equations with integers • Solves linear equations using substitution • 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* • Solves open sentences with integers* • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems* • Applies systems-of-linear-equations methods to solve theoretical problems • Solves simple one-step inequality open sentences* • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)*
Properties	**Properties**	**Properties**
• Evaluates numerical expressions using grouping symbols (whole numbers only) • Evaluates a numerical expression involving more than one operation* • Demonstrates an understanding of the associative property of addition* • Demonstrates an understanding of the commutative property of addition • Demonstrates an understanding of the zero property of addition (identity) • Demonstrates an understanding of symmetric property applied to basic addition and subtraction facts (e.g., 10 = 2 + 8 is the same as 2 + 8 = 10 or 7 = 10 - 3 is the same as 10 - 3 = 7)* • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of symmetric property applied to multiplication (e.g., 8 x 4 = 32 is the same as 32 = 8 x 4)* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Solves 2-step open sentences with missing addends* • Solves open sentences with basic-facts calculations on both sides of the sentence	• Evaluates a numerical expression involving more than one operation* • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the associative property of multiplication • Demonstrates an understanding of the distributive property of multiplication by decomposing a term* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Demonstrates an understanding that division by 0 is undefined* • Solves open sentences using the distributive property • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors	• Demonstrates an understanding of the commutative property of multiplication with complex problems (e.g., parenthesis, 3 factors) • Demonstrates an understanding of multiple properties • Uses the distributive property • 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)* • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors

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New Vocabulary: commutative, inverse operation, mathematical statement, minimum, ordered pair	*New Vocabulary:* high, negative, positive, proof, triple	*New Vocabulary:* algebra, algebraic equation, associative, distributive, reflexive, substitution, transitive
New Signs and Symbols: ( ) ordered pair, − negative number, + positive number, = is equal to	*New Signs and Symbols:* a.m., $ dollar sign, °F degrees Fahrenheit, ? next in sequence	*New Signs and Symbols:* ( ) parenthesis around an integer, ∩ intersection, ∅ null or empty set, + positive number, repeating decimal overbar, Δ triangle

Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 221 - 230

Skills and Concepts to Enhance 211 - 220	Skills and Concepts to Develop 221 - 230	Skills and Concepts to Introduce 231 - 240
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Looks for a growing pattern to solve a problem • Recognizes characteristics of odd and even numbers • Extends a repeating pattern of geometric shapes in a grid* • Extends a growing geometric pattern - using numbers* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends, or completes, growing patterns defined by equations or number facts • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Identifies rules and applies them to new patterns • Determines the rule and completes a simple function machine output* • Uses mapping diagrams to represent functions* • Solves problems involving simple functions*	• Looks for a growing pattern to solve a problem • Recognizes characteristics of odd and even numbers • Extends a growing pattern of triangular numbers, defined by objects or diagrams • Uses mapping diagrams to represent functions* • Completes a function table according to a rule* • Investigates and describes functional relationships of geometric figures (e.g., area is a function of the radius)* • Solves problems involving simple functions*	• Recognizes and extends arithmetic sequences (predicts nth term) • Represents real-world functions using an equation • Uses tables to determine function equations • Completes a function table according to a rule* • Models real life functions using function notation* • Identifies the graph type, given equations of linear and nonlinear functions* • Solves problems involving simple functions* • Solves problems involving complex functions
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Translates a 2-step problem to a symbolic expression or equation • Determines the operation needed from a complex problem* • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Solves simple open sentences with missing factors (numbers over 100) • Solves 1-step linear equations • Applies algebraic methods to solve theoretical problems	• Translates a problem to a symbolic expression or equation (analysis)* • Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation* • 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 1-step linear equations • Solves 2-step linear equations* • Solves linear equations with decimals*	• Translates a problem to a symbolic expression or equation (analysis)* • Uses expressions to represent situations that involve variable quantities with exponents* • 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 • Expresses a simple linear equation from a contextual situation • Solves 2-step linear equations* • Solves linear equations with decimals* • Solves linear equations with integers • Solves linear equations with fractions • Solves open sentences with integers* • Solves linear equations using rational numbers* • Applies algebraic methods to solve real-world

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	• Solves linear equations with integers • Solves linear equations using substitution • 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* • Solves open sentences with integers* • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems* • Applies systems-of-linear-equations methods to solve theoretical problems • Solves simple one-step inequality open sentences* • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)*	problems* • Writes the equation of a horizontal or vertical line when given the graph of the line* • Determines the graph of a horizontal or vertical line when given the equation* • Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • 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 simple inequalities with rational number solutions
Properties	**Properties**	**Properties**
• Evaluates a numerical expression involving more than one operation* • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the associative property of multiplication • Demonstrates an understanding of the distributive property of multiplication by decomposing a term* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Demonstrates an understanding that division by 0 is undefined* • Solves open sentences using the distributive property • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors	• Demonstrates an understanding of the commutative property of multiplication with complex problems (e.g., parenthesis, 3 factors) • Demonstrates an understanding of multiple properties • Uses the distributive property • 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)* • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors	• Evaluates numerical expressions using the order of operations (whole numbers only) • Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers)* • Calculates sums combining fractions, decimals, and percents • Identifies the distributive property* • Uses the distributive property • 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)* • Solves 2-step open sentences with missing factors (variables on both sides of the sentence)*
New Vocabulary: high, negative, positive, proof, triple	*New Vocabulary:* algebra, algebraic equation, associative, distributive, reflexive, substitution, transitive	*New Vocabulary:* algebraic sentence, arithmetic progression, depreciate, equation of a line, identity

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.

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		element, linear graph, mathematical sentence, regression equation, skew
New Signs and Symbols: a.m., $ dollar sign, °F degrees Fahrenheit, ? next in sequence	*New Signs and Symbols:* ( ) parenthesis around an integer, ∩ intersection, ∅ null or empty set, + positive number, repeating decimal overbar, Δ triangle	*New Signs and Symbols:* [ ] square brackets, f(x) the value of the function f at x, ≥ greater than or equal to, ≤ less than or equal to, • multiplication symbol, % percent, – subtraction, < less than

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Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 231 - 240

Skills and Concepts to Enhance 221 - 230	Skills and Concepts to Develop 231 - 240	Skills and Concepts to Introduce 241 - 250
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Looks for a growing pattern to solve a problem • Recognizes characteristics of odd and even numbers • Extends a growing pattern of triangular numbers, defined by objects or diagrams • Uses mapping diagrams to represent functions* • Completes a function table according to a rule* • Investigates and describes functional relationships of geometric figures (e.g., area is a function of the radius)* • Solves problems involving simple functions*	• Recognizes and extends arithmetic sequences (predicts nth term) • Represents real-world functions using an equation • Uses tables to determine function equations • Completes a function table according to a rule* • Models real life functions using function notation* • Identifies the graph type, given equations of linear and nonlinear functions* • Solves problems involving simple functions* • Solves problems involving complex functions	• Represents growing arithmetic patterns using algebraic expressions or equations* • Uses an algebraic expression to represent a triangular number pattern* • Uses tables to determine function equations • Completes a function table according to a rule (rational numbers)* • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation* • Uses ordered pairs to graph a parabola* • 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*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Translates a problem to a symbolic expression or equation (analysis)* • Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation* • 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 1-step linear equations • Solves 2-step linear equations* • Solves linear equations with decimals*	• Translates a problem to a symbolic expression or equation (analysis)* • Uses expressions to represent situations that involve variable quantities with exponents* • 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 • Expresses a simple linear equation from a contextual situation • Solves 2-step linear equations* • Solves linear equations with decimals* • Solves linear equations with integers • Solves linear equations with fractions • Solves open sentences with integers* • Solves linear equations using rational numbers* • Applies algebraic methods to solve real-world	• Uses expressions to represent situations that involve variable quantities with exponents* • Determines the expression for the area of a figure represented by algebra tiles • Factors trinomials in the form $x^2 + bx + c$ • Factors polynomials using difference of squares* • Uses linear equations to represent situations involving variable quantities • 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* • Writes linear equations when given ordered pairs*

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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• Solves linear equations with integers • Solves linear equations using substitution • 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* • Solves open sentences with integers* • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems* • Applies systems-of-linear-equations methods to solve theoretical problems • Solves simple one-step inequality open sentences* • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)*	problems* • Writes the equation of a horizontal or vertical line when given the graph of the line* • Determines the graph of a horizontal or vertical line when given the equation* • Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • 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 simple inequalities with rational number solutions	• Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Recognizes the slope of horizontal and vertical lines* • Identifies and describes situations with varying rates of change* • Describes a relationship or a real-world situation represented by a quadratic equation* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Uses the Multiplication Property of Equality as a first step in solving systems of linear equations* • Uses algebraic methods to solve systems of linear equations • Uses graphs to solve systems of linear equations in real-world situations* • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)* • Solves linear inequalities using graphs
Properties	**Properties**	**Properties**
• Demonstrates an understanding of the commutative property of multiplication with complex problems (e.g., parenthesis, 3 factors) • Demonstrates an understanding of multiple properties • Uses the distributive property • 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)* • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors	• Evaluates numerical expressions using the order of operations (whole numbers only) • Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers)* • Calculates sums combining fractions, decimals, and percents • Identifies the distributive property* • Uses the distributive property • 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)* • Solves 2-step open sentences with missing factors (variables on both sides of the sentence)*	• Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers)* • Evaluates expressions using the order of operations, including exponents (using integers)* • Identifies the associative property of addition* • Uses the multiplicative inverse property with rational numbers* • Evaluates expressions by substituting with rational numbers • Evaluates absolute-value algebraic expressions using substitution strategies* • Simplifies polynomial expressions • Multiplies binomials • Solves 2-step open sentences with missing factors (variables on both sides of the sentence)*

WI 3.2.1

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.

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New Vocabulary: algebra, algebraic equation, associative, distributive, reflexive, substitution, transitive	*New Vocabulary:* algebraic sentence, arithmetic progression, depreciate, equation of a line, identity element, linear graph, mathematical sentence, regression equation, skew	*New Vocabulary:* algebra tile, domain, function table, number sequence, point of intersection, polynomial, solution set, squared, system of equations, x-axis, y-intercept
New Signs and Symbols: ( ) parenthesis around an integer, ∩ intersection, ∅ null or empty set, + positive number, repeating decimal overbar, Δ triangle	*New Signs and Symbols:* [ ] square brackets, f(x) the value of the function f at x, ≥ greater than or equal to, ≤ less than or equal to, • multiplication symbol, % percent, − subtraction, < less than	*New Signs and Symbols:* none

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 241 - 250

Skills and Concepts to Enhance 231 - 240	Skills and Concepts to Develop 241 - 250	Skills and Concepts to Introduce 251 - 260
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Recognizes and extends arithmetic sequences (predicts nth term) • Represents real-world functions using an equation • Uses tables to determine function equations • Completes a function table according to a rule* • Models real life functions using function notation* • Identifies the graph type, given equations of linear and nonlinear functions* • Solves problems involving simple functions* • Solves problems involving complex functions	• Represents growing arithmetic patterns using algebraic expressions or equations* • Uses an algebraic expression to represent a triangular number pattern* • Uses tables to determine function equations • Completes a function table according to a rule (rational numbers)* • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation* • Uses ordered pairs to graph a parabola* • 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*	• Estimates the limit of a given infinite sequence (e.g., given the sequence 1/n, as n gets larger)* • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation* • Distinguishes between linear and nonlinear functions (analysis) • Uses graphs to represent functions and interpret slope* • Identifies the equation of a parabola • Determines the vertex of a parabola • Investigates, describes, and predicts the effects of parameter changes on the graphs of exponential functions* • Determines the effects of parameter changes on functions • Determines the domain and range of a function*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Translates a problem to a symbolic expression or equation (analysis)* • Uses expressions to represent situations that involve variable quantities with exponents* • 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 • Expresses a simple linear equation from a contextual situation • Solves 2-step linear equations* • Solves linear equations with decimals* • Solves linear equations with integers • Solves linear equations with fractions • Solves open sentences with integers* • Solves linear equations using rational numbers* • Applies algebraic methods to solve real-world	• Uses expressions to represent situations that involve variable quantities with exponents* • Determines the expression for the area of a figure represented by algebra tiles • Factors trinomials in the form $x^2 + bx + c$ • Factors polynomials using difference of squares* • Uses linear equations to represent situations involving variable quantities • 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* • Writes linear equations when given ordered pairs*	• Uses expressions to represent situations that involve variable quantities with exponents* • Uses expressions with absolute value to represent situations* • Factors polynomials by identifying common factors* • Factors trinomials in the form $x^2 + bx + c$ • Factors polynomials using difference of squares* • Writes equivalent forms of algebraic equations using multiplication and division • Solves linear equations using rational numbers* • Applies algebraic methods to solve complex real-world and theoretical problems • Solves problems involving consecutive numbers* • Rewrites a complex formula to solve for a specific variable* • Rewrites an equation for a line in standard form* • Writes the equation of the line when given the graph of

WI 3.2.1
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- problems*
- Writes the equation of a horizontal or vertical line when given the graph of the line*
- Determines the graph of a horizontal or vertical line when given the equation*
- Determines slope from a linear equation*
- Using the slope of an equation, identifies parallel and perpendicular lines*
- Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides)
- 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 simple inequalities with rational number solutions

- Determines slope from a linear equation*
- Using the slope of an equation, identifies parallel and perpendicular lines*
- Recognizes the slope of horizontal and vertical lines*
- Identifies and describes situations with varying rates of change*
- Describes a relationship or a real-world situation represented by a quadratic equation*
- Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides)
- Uses the Multiplication Property of Equality as a first step in solving systems of linear equations*
- Uses algebraic methods to solve systems of linear equations
- Uses graphs to solve systems of linear equations in real-world situations*
- Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)*
- Solves linear inequalities using graphs

- the line*
- Determines the graph of a line when given the equation*
- Writes linear equations, given two points on a line
- Determines slope from an equation (analysis)*
- Determines slope from graphs
- Determines slope from ordered pairs and tables
- Interprets the meaning of slope and intercepts in problem solving situations
- Determines the slope of parallel lines*
- Determines the slope of perpendicular lines*
- Uses algebraic terms appropriately (e.g., "equation," "inequality," "variable," "expression," "term," "coefficient," "domain," "range")*
- Identifies discriminants and roots
- Solves quadratic equations by factoring
- Solves quadratic equations by completing the square*
- Solves polynomial equations (e.g., $ax = b + cx$, $a(x + b) = c$, $ax + b = cx + d$, $a(bx + c) = d(ex + f)$, $a/x = b$)
- Uses polynomial equations to solve complex theoretical problems (e.g., using distributive property, variables on both sides)*
- Rewrites an equation as a first step in factoring*
- Uses polynomial equations to solve area and perimeter problems
- Solves polynomial equations using binomial expansion*
- Solves polynomial equations with integers as exponents*
- Solves logarithmic equations*
- Uses the Multiplication Property of Equality as a first step in solving systems of linear equations*
- Uses substitution as a first step in solving systems of linear equations*
- Uses algebraic methods to solve systems of linear equations
- Uses graphs to solve systems of linear equations
- Uses graphs to solve systems of linear equations in real-world situations*
- Solves real-world systems of linear equations*
- Solves single variable linear inequalities with variable in both members using number lines
- Solves absolute value inequalities*

* 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.

Properties	Properties	Properties
• Evaluates numerical expressions using the order of operations (whole numbers only) • Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers)* • Calculates sums combining fractions, decimals, and percents • Identifies the distributive property* • Uses the distributive property • 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)* • Solves 2-step open sentences with missing factors (variables on both sides of the sentence)*	• Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers)* • Evaluates expressions using the order of operations, including exponents (using integers)* • Identifies the associative property of addition* • Uses the multiplicative inverse property with rational numbers* • Evaluates expressions by substituting with rational numbers • Evaluates absolute-value algebraic expressions using substitution strategies* • Simplifies polynomial expressions • Multiplies binomials • Solves 2-step open sentences with missing factors (variables on both sides of the sentence)*	• Identifies the commutative property of multiplication* • Uses the additive inverse property with rational numbers* • Evaluates expressions by substituting with rational numbers • Simplifies monomials • Simplifies polynomial expressions • Multiplies binomials • Multiplies a polynomial by a polynomial • Divides a polynomial by a monomial*
New Vocabulary: algebraic sentence, arithmetic progression, depreciate, equation of a line, identity element, linear graph, mathematical sentence, regression equation, skew	*New Vocabulary:* algebra tile, domain, function table, number sequence, point of intersection, polynomial, solution set, squared, system of equations, x-axis, y-intercept	*New Vocabulary:* coordinate plane, empty set, geometric series, undefined, wider, x-coordinate, x-intercept, y-coordinate
New Signs and Symbols: [ ] square brackets, f(x) the value of the function f at x, ≥ greater than or equal to, ≤ less than or equal to, • multiplication symbol, % percent, – subtraction, < less than	*New Signs and Symbols:* none	*New Signs and Symbols:* ‖ absolute value, cm centimeter/centimetre, m meter/metre, – negative sign, ℙ perimeter, square root symbol

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Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: 251 - 260

Skills and Concepts to Enhance 241 - 250	Skills and Concepts to Develop 251 - 260	Skills and Concepts to Introduce Above 260
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**	**Patterns, Relations, and Functions**
• Represents growing arithmetic patterns using algebraic expressions or equations* • Uses an algebraic expression to represent a triangular number pattern* • Uses tables to determine function equations • Completes a function table according to a rule (rational numbers)* • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation* • Uses ordered pairs to graph a parabola* • 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*	• Estimates the limit of a given infinite sequence (e.g., given the sequence 1/n, as n gets larger)* • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation* • Distinguishes between linear and nonlinear functions (analysis) • Uses graphs to represent functions and interpret slope* • Identifies the equation of a parabola • Determines the vertex of a parabola • Investigates, describes, and predicts the effects of parameter changes on the graphs of exponential functions* • Determines the effects of parameter changes on functions • Determines the domain and range of a function*	• Determines the minimum and maximum of a quadratic function*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**	**Expressions, Equations, and Inequalities**
• Uses expressions to represent situations that involve variable quantities with exponents* • Determines the expression for the area of a figure represented by algebra tiles • Factors trinomials in the form $x^2 + bx + c$ • Factors polynomials using difference of squares* • Uses linear equations to represent situations involving variable quantities • 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* • Writes linear equations when given ordered pairs*	• Uses expressions to represent situations that involve variable quantities with exponents* • Uses expressions with absolute value to represent situations* • Factors polynomials by identifying common factors* • Factors trinomials in the form $x^2 + bx + c$ • Factors polynomials using difference of squares* • Writes equivalent forms of algebraic equations using multiplication and division • Solves linear equations using rational numbers* • Applies algebraic methods to solve complex real-world and theoretical problems • Solves problems involving consecutive numbers* • Rewrites a complex formula to solve for a specific variable* • Rewrites an equation for a line in standard form* • Writes the equation of the line when given the graph of	• Factors polynomials by identifying a common monomial and then factoring the trinomial • Rewrites a complex formula to solve for a specific variable* • Determines x- or y-intercept of a given linear equation* • Writes the equation of the line when given the graph of the line* • Writes linear equations, given slope and point on a line • Determines slope from an equation (analysis)* • Determines the slope of parallel lines* • Determines the slope of perpendicular lines* • Solves quadratic equations using the quadratic formula • Solves quadratic equations by completing the square* • Solves polynomial equations with fractions as exponents* • Solves logarithmic equations*

WI 3.2.1
* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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- Determines slope from a linear equation*
- Using the slope of an equation, identifies parallel and perpendicular lines*
- Recognizes the slope of horizontal and vertical lines*
- Identifies and describes situations with varying rates of change*
- Describes a relationship or a real-world situation represented by a quadratic equation*
- Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides)
- Uses the Multiplication Property of Equality as a first step in solving systems of linear equations*
- Uses algebraic methods to solve systems of linear equations
- Uses graphs to solve systems of linear equations in real-world situations*
- Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)*
- Solves linear inequalities using graphs

- the line*
- Determines the graph of a line when given the equation*
- Writes linear equations, given two points on a line
- Determines slope from an equation (analysis)*
- Determines slope from graphs
- Determines slope from ordered pairs and tables
- Interprets the meaning of slope and intercepts in problem solving situations
- Determines the slope of parallel lines*
- Determines the slope of perpendicular lines*
- Uses algebraic terms appropriately (e.g., "equation," "inequality," "variable," "expression," "term," "coefficient," "domain," "range")*
- Identifies discriminants and roots
- Solves quadratic equations by factoring
- Solves quadratic equations by completing the square*
- Solves polynomial equations (e.g., $ax = b + cx$, $a(x + b) = c$, $ax + b = cx + d$, $a(bx + c) = d(ex + f)$, $a/x = b$)
- Uses polynomial equations to solve complex theoretical problems (e.g., using distributive property, variables on both sides)*
- Rewrites an equation as a first step in factoring*
- Uses polynomial equations to solve area and perimeter problems
- Solves polynomial equations using binomial expansion*
- Solves polynomial equations with integers as exponents*
- Solves logarithmic equations*
- Uses the Multiplication Property of Equality as a first step in solving systems of linear equations*
- Uses substitution as a first step in solving systems of linear equations*
- Uses algebraic methods to solve systems of linear equations
- Uses graphs to solve systems of linear equations
- Uses graphs to solve systems of linear equations in real-world situations*
- Solves real-world systems of linear equations*
- Solves single variable linear inequalities with variable in both members using number lines
- Solves absolute value inequalities*

- Solves real-world systems of linear equations*
- Solves polynomial inequalities
- Solves absolute value inequalities*

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Blank cells indicate data are limited or unavailable for this range or document version.

Properties	Properties	Properties
• Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers)* • Evaluates expressions using the order of operations, including exponents (using integers)* • Identifies the associative property of addition* • Uses the multiplicative inverse property with rational numbers* • Evaluates expressions by substituting with rational numbers • Evaluates absolute-value algebraic expressions using substitution strategies* • Simplifies polynomial expressions • Multiplies binomials • Solves 2-step open sentences with missing factors (variables on both sides of the sentence)*	• Identifies the commutative property of multiplication* • Uses the additive inverse property with rational numbers* • Evaluates expressions by substituting with rational numbers • Simplifies monomials • Simplifies polynomial expressions • Multiplies binomials • Multiplies a polynomial by a polynomial • Divides a polynomial by a monomial*	• Simplifies monomials • Simplifies polynomial expressions using power laws*
New Vocabulary: algebra tile, domain, function table, number sequence, point of intersection, polynomial, solution set, squared, system of equations, x-axis, y-intercept	*New Vocabulary:* coordinate plane, empty set, geometric series, undefined, wider, x-coordinate, x-intercept, y-coordinate	*New Vocabulary:* none
New Signs and Symbols: none	*New Signs and Symbols:* ‖ absolute value, cm centimeter/centimetre, m meter/metre, − negative sign, P perimeter, square root symbol	*New Signs and Symbols:* none

Subject: Mathematics
Goal Strand: Algebraic Relationships
RIT Score Range: Above 260

Skills and Concepts to Enhance 251 - 260	Skills and Concepts to Develop Above 260
Patterns, Relations, and Functions	**Patterns, Relations, and Functions**
- Estimates the limit of a given infinite sequence (e.g., given the sequence 1/n, as n gets larger)* - Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) - Models real life functions using function notation* - Distinguishes between linear and nonlinear functions (analysis) - Uses graphs to represent functions and interpret slope* - Identifies the equation of a parabola - Determines the vertex of a parabola - Investigates, describes, and predicts the effects of parameter changes on the graphs of exponential functions* - Determines the effects of parameter changes on functions - Determines the domain and range of a function*	Determines the minimum and maximum of a quadratic function*
Expressions, Equations, and Inequalities	**Expressions, Equations, and Inequalities**
- Uses expressions to represent situations that involve variable quantities with exponents* - Uses expressions with absolute value to represent situations* - Factors polynomials by identifying common factors* - Factors trinomials in the form $x^2 + bx + c$ - Factors polynomials using difference of squares* - Writes equivalent forms of algebraic equations using multiplication and division - Solves linear equations using rational numbers* - Applies algebraic methods to solve complex real-world and theoretical problems - Solves problems involving consecutive numbers* - Rewrites a complex formula to solve for a specific variable* - Rewrites an equation for a line in standard form* - Writes the equation of the line when given the graph of	- Factors polynomials by identifying a common monomial and then factoring the trinomial - Rewrites a complex formula to solve for a specific variable* - Determines x- or y-intercept of a given linear equation* - Writes the equation of the line when given the graph of the line* - Writes linear equations, given slope and point on a line - Determines slope from an equation (analysis)* - Determines the slope of parallel lines* - Determines the slope of perpendicular lines* - Solves quadratic equations using the quadratic formula - Solves quadratic equations by completing the square* - Solves polynomial equations with fractions as exponents* - Solves logarithmic equations*

* 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.

- the line*
- Determines the graph of a line when given the equation*
- Writes linear equations, given two points on a line
- Determines slope from an equation (analysis)*
- Determines slope from graphs
- Determines slope from ordered pairs and tables
- Interprets the meaning of slope and intercepts in problem solving situations
- Determines the slope of parallel lines*
- Determines the slope of perpendicular lines*
- Uses algebraic terms appropriately (e.g., "equation," "inequality," "variable," "expression," "term," "coefficient," "domain," "range")*
- Identifies discriminants and roots
- Solves quadratic equations by factoring
- Solves quadratic equations by completing the square*
- Solves polynomial equations (e.g., $ax = b + cx$, $a(x + b) = c$, $ax + b = cx + d$, $a(bx + c) = d(ex + f)$, $a/x = b$)
- Uses polynomial equations to solve complex theoretical problems (e.g., using distributive property, variables on both sides)*
- Rewrites an equation as a first step in factoring*
- Uses polynomial equations to solve area and perimeter problems
- Solves polynomial equations using binomial expansion*
- Solves polynomial equations with integers as exponents*
- Solves logarithmic equations*
- Uses the Multiplication Property of Equality as a first step in solving systems of linear equations*
- Uses substitution as a first step in solving systems of linear equations*
- Uses algebraic methods to solve systems of linear equations
- Uses graphs to solve systems of linear equations
- Uses graphs to solve systems of linear equations in real-world situations*
- Solves real-world systems of linear equations*
- Solves single variable linear inequalities with variable in both members using number lines
- Solves absolute value inequalities*

- Solves real-world systems of linear equations*
- Solves polynomial inequalities
- Solves absolute value inequalities*

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Properties	Properties
• Identifies the commutative property of multiplication* • Uses the additive inverse property with rational numbers* • Evaluates expressions by substituting with rational numbers • Simplifies monomials • Simplifies polynomial expressions • Multiplies binomials • Multiplies a polynomial by a polynomial • Divides a polynomial by a monomial*	• Simplifies monomials • Simplifies polynomial expressions using power laws*
New Vocabulary: coordinate plane, empty set, geometric series, undefined, wider, x-coordinate, x-intercept, y-coordinate	*New Vocabulary:* none
New Signs and Symbols: ‖ absolute value, cm centimeter/centimetre, m meter/metre, − negative sign, P perimeter, square root symbol	*New Signs and Symbols:* none

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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