DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 211 - 220
Statements Last Updated: Mar 10, 2014

Skills and Concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
Expressions and Equations	Expressions and Equations	Expressions and Equations
• Uses rounding to estimate answers to 2-step problems involving money (using decimals) • Solves whole number subtraction word problems with numbers over 1000 • Evaluates numerical expressions using grouping symbols (whole numbers only) • Demonstrates an understanding of the commutative property of addition • Understands equivalence and extends the concept to number sentences involving variables (e.g., 8 + 2 = [] + 2) • Uses algebraic reasoning to solve problems involving equality relationships • Uses simple linear equations to represent problem situations • Describes a realistic situation using information given in a linear equation • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under) • Solves 2-step open sentences with missing addends • Solves open sentences with basic-facts calculations on both sides of the sentence • Translates a 2-step problem to a symbolic expression or equation • Solves real-world problems using reasoning strategies	• Uses rounding to estimate answers to 2-step problems involving money (using decimals) • Demonstrates an understanding of the associative property of multiplication • Demonstrates an understanding of the distributive property of multiplication by decomposing a term • Calculates the value of a power (e.g., 2^3 = 8) • Uses a table of input/output values to represent patterns • Understands equivalence and extends the concept to number sentences involving variables (e.g., 8 + 2 = [] + 2) • Uses algebraic reasoning to solve problems involving equality relationships • Uses simple linear equations to represent problem situations • Solves simple open sentences with missing factors (numbers over 100) • 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 • Solves 1-step linear equations • Applies algebraic methods to solve theoretical problems • Translates a 2-step problem to a symbolic expression or equation • Solves real-world problems using reasoning strategies • Uses powers to represent 10, 100, 1000, 10,000, and 100,000	• 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 or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step) • Solves real-world problems using reasoning strategies

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	Expressions and Equations	Expressions and Equations
		• Uses powers to represent 10, 100, 1000, 10,000, and 100,000 • Writes a number expressed in scientific notation in standard form
Use Functions to Model Relationships	Use Functions to Model Relationships	Use Functions to Model Relationships
• Extends a growing arithmetic pattern, defined by objects or diagrams • Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) • Completes a function table given a simple rule (e.g., x + 2) • Predicts from simple charts and tables	• Completes a function table given a simple rule (e.g., x + 2) • Solves problems involving simple functions • Looks for a growing pattern to solve a problem • Interprets data in line graphs (e.g., change over time)	• 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
New Vocabulary: minimum, plus	*New Vocabulary:* None	*New Vocabulary:* algebra, net, reflexive, short, transitive
New Signs and Symbols: °C degrees Celsius, = is equal to, min minute, - negative number, p.m., + positive number	*New Signs and Symbols:* ( ) parenthesis around an integer, a.m., ¢ cent sign, °F degrees Fahrenheit, $ dollar sign, lb pound, mph miles per hour	*New Signs and Symbols:* < less than, m meter/metre, repeating decimal overbar, △ triangle

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