DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: < 161
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Develop (50% Probability*) < 161	Skills and Concepts to Introduce (27% Probability*) 161 - 170
Represent and Solve Problems	Represent and Solve Problems
• Uses models to construct whole number addition facts with addends through 10 • Adds two 1-digit numbers with sums to 10 in horizontal format	• Uses a number line to construct addition facts with sums through 20 (whole numbers) • Adds two 1-digit numbers with sums to 10 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in vertical format • Solves real-world whole number addition problems with sums to 20 (result unknown) • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Subtracts two 1-digit numbers vertically • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Solves basic-facts open sentences - addition and subtraction
Analyze Patterns and Relationships	Analyze Patterns and Relationships
New Vocabulary: None	*New Vocabulary:* None
New Signs and Symbols: None	*New Signs and Symbols:* + addition, = is equal to, × multiplication, - subtraction, variable

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 161 - 170
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) < 161	Skills and Concepts to Develop (50% Probability*) 161 - 170	Skills and Concepts to Introduce (27% Probability*) 171 - 180
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Uses models to construct whole number addition facts with addends through 10 • Adds two 1-digit numbers with sums to 10 in horizontal format	• Uses a number line to construct addition facts with sums through 20 (whole numbers) • Adds two 1-digit numbers with sums to 10 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in vertical format • Solves real-world whole number addition problems with sums to 20 (result unknown) • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Subtracts two 1-digit numbers vertically • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Solves basic-facts open sentences - addition and subtraction	• Uses a number line to construct addition facts with sums through 20 (whole numbers) • Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves real-world whole number addition problems with sums to 20 (start unknown) • Solves real-world whole number addition problems with sums to 100 (result unknown) • Represents a basic facts addition problem with a number sentence • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Solves real-world whole number problems involving subtraction with numbers under 20 • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Multiplies basic facts to 10 x 10 vertically • Adds 1-digit numbers with sums to 18 (with parentheses) • Recognizes addition and subtraction fact families through 18 • Solves basic-facts open sentences - addition and subtraction • Solves basic facts open sentences - multiplication and division • Determines the operation needed from a simple problem • Writes a number sentence for a simple problem solving situation • Counts by 2's to 100 • Writes equivalent forms of whole number expressions (e.g., 15 + 5 = 10 + 10)
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and Relationships
		• Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule
New Vocabulary: None	*New Vocabulary:* None	*New Vocabulary:* fact family
New Signs and Symbols: None	*New Signs and Symbols:* + addition, = is equal to, × multiplication, - subtraction, variable	*New Signs and Symbols:* ( ) order of operations, I tally mark

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 171 - 180
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Uses a number line to construct addition facts with sums through 20 (whole numbers) • Adds two 1-digit numbers with sums to 10 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in vertical format • Solves real-world whole number addition problems with sums to 20 (result unknown) • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Subtracts two 1-digit numbers vertically • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Solves basic-facts open sentences - addition and subtraction	• Uses a number line to construct addition facts with sums through 20 (whole numbers) • Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves real-world whole number addition problems with sums to 20 (start unknown) • Solves real-world whole number addition problems with sums to 100 (result unknown) • Represents a basic facts addition problem with a number sentence • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Solves real-world whole number problems involving subtraction with numbers under 20 • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Multiplies basic facts to 10 x 10 vertically • Adds 1-digit numbers with sums to 18 (with parentheses) • Recognizes addition and subtraction fact families through 18 • Solves basic-facts open sentences - addition and subtraction • Solves basic facts open sentences - multiplication and division • Determines the operation needed from a simple problem • Writes a number sentence for a simple problem solving situation • Counts by 2's to 100 • Writes equivalent forms of whole number expressions (e.g., 15 + 5 = 10 + 10)	• Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only) • Instantly recalls basic addition facts with sums to 18 in a table • Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given • Solves real-world whole number addition problems with sums to 100 (result unknown) • Instantly recalls basic subtraction facts with minuend less than 10 • Solves real-world whole number problems involving subtraction with numbers under 20 • Solves real-world whole number problems involving subtraction with numbers 100 and under • Solves real-world whole number problems involving subtraction with numbers under 1000 • Solves problems using the inverse relationship between addition and subtraction • Uses counting by multiples for multiplication • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Multiplies basic facts to 10 x 10 vertically • Solves word problems involving basic whole number multiplication facts to 10 x 10 • Uses manipulatives to divide a small set of objects into groups of equal size • Uses sharing for division • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Models multiplication and division algorithms using arrays (whole numbers) • Instantly recalls division facts with dividend and divisors less than 10 • Solves real-world whole number problems involving addition and subtraction • 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 • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances) • Solves 1-step open sentences with missing addends (numbers 100 and under)

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 171 - 180
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
		• Determines the operation needed from a simple problem • Writes a number sentence for a simple problem solving situation • Interprets a chart or table - calculation required • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7) • Distinguishes between odd and even numbers
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and Relationships
	• Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule	• Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule
New Vocabulary: None	*New Vocabulary:* fact family	*New Vocabulary:* gave, left, row, unifix cubes
New Signs and Symbols: + addition, = is equal to, × multiplication, - subtraction, variable	*New Signs and Symbols:* ( ) order of operations, I tally mark	*New Signs and Symbols:* ÷ division, long division symbol

Explanatory Notes
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DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 181 - 190
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Uses a number line to construct addition facts with sums through 20 (whole numbers)	• Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only)	• Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only)
• Solves real-world whole number addition problems with sums to 20 (result unknown)	• Instantly recalls basic addition facts with sums to 18 in a table	• Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given
• Solves real-world whole number addition problems with sums to 20 (start unknown)	• Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given	• Solves real-world whole number addition problems with sums to 20 (change unknown)
• Solves real-world whole number addition problems with sums to 100 (result unknown)	• Solves real-world whole number addition problems with sums to 100 (result unknown)	• Solves real-world whole number problems involving subtraction with numbers 100 and under
• Represents a basic facts addition problem with a number sentence	• Instantly recalls basic subtraction facts with minuend less than 10	• Solves real-world whole number problems involving subtraction with numbers under 1000
• Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)	• Solves real-world whole number problems involving subtraction with numbers under 20	• Solves whole number subtraction word problems with numbers over 1000
• Solves real-world whole number problems involving subtraction with numbers under 20	• Solves real-world whole number problems involving subtraction with numbers 100 and under	• Solves problems using the inverse relationship between addition and subtraction
• Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12	• Solves real-world whole number problems involving subtraction with numbers under 1000	• Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12
• Multiplies basic facts to 10 x 10 vertically	• Solves problems using the inverse relationship between addition and subtraction	• Solves word problems involving basic whole number multiplication facts to 10 x 10
• Adds 1-digit numbers with sums to 18 (with parentheses)	• Uses counting by multiples for multiplication	• Solves word problems involving whole number multiplication with numbers greater than 10 x 10
• Recognizes addition and subtraction fact families through 18	• Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12	• Uses manipulatives to divide a small set of objects into groups of equal size
• Solves basic-facts open sentences - addition and subtraction	• Multiplies basic facts to 10 x 10 vertically	• Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction)
• Solves basic facts open sentences - multiplication and division	• Solves word problems involving basic whole number multiplication facts to 10 x 10	• Instantly recalls division facts with dividend and divisors less than 10
• Determines the operation needed from a simple problem	• Uses manipulatives to divide a small set of objects into groups of equal size	• Instantly recalls division facts with dividend and divisors less than 13
• Writes a number sentence for a simple problem solving situation	• Uses sharing for division	• Solves word problems with whole number division facts with dividend and divisors less than 11
• Counts by 2's to 100	• Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction)	• Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)
• Writes equivalent forms of whole number expressions (e.g., 15 + 5 = 10 + 10)	• Models multiplication and division algorithms using arrays (whole numbers)	• Evaluates numerical expressions using grouping symbols (whole numbers only)
	• Instantly recalls division facts with dividend and divisors less than 10	• Demonstrates an understanding of the commutative property of multiplication with simple problems
	• Solves real-world whole number problems involving addition and subtraction	• Demonstrates an understanding of the zero property of multiplication
	• Recognizes addition and subtraction fact families through 18	• Uses algebraic reasoning to solve problems involving equality relationships
	• Demonstrates an understanding of the zero property of multiplication	• Solves 1-step open sentences with missing addends (numbers 100 and under)
	• Demonstrates an understanding of the inverse relationship between multiplication and division	
	• Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)	
	• Solves 1-step open sentences with missing addends (numbers 100 and under)	

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 181 - 190
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
	• Determines the operation needed from a simple problem • Writes a number sentence for a simple problem solving situation • Interprets a chart or table - calculation required • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7) • Distinguishes between odd and even numbers	• Solves simple open sentences with missing factors (numbers 100 and under) • Solves 2-step open sentences with missing addends • Determines the operation needed from a simple problem • Translates a 1-step problem to a symbolic expression or equation • Interprets a chart or table - calculation required • Solves problems using tables • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7) • Distinguishes between odd and even numbers
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and Relationships
• Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule	• Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule	• Extends a growing arithmetic pattern, defined by objects or diagrams • Analyzes a growing, arithmetic pattern with numbers to determine the rule • Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) • Identifies numbers as composite
New Vocabulary: fact family	*New Vocabulary:* gave, left, row, unifix cubes	*New Vocabulary:* composite number, each, prime number
New Signs and Symbols: ( ) order of operations, l tally mark	*New Signs and Symbols:* ÷ division, long division symbol	*New Signs and Symbols:* °F degrees Fahrenheit, $ dollar sign, lb pound

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 191 - 200
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only) • Instantly recalls basic addition facts with sums to 18 in a table • Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given • Solves real-world whole number addition problems with sums to 100 (result unknown) • Instantly recalls basic subtraction facts with minuend less than 10 • Solves real-world whole number problems involving subtraction with numbers under 20 • Solves real-world whole number problems involving subtraction with numbers 100 and under • Solves real-world whole number problems involving subtraction with numbers under 1000 • Solves problems using the inverse relationship between addition and subtraction • Uses counting by multiples for multiplication • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Multiplies basic facts to 10 x 10 vertically • Solves word problems involving basic whole number multiplication facts to 10 x 10 • Uses manipulatives to divide a small set of objects into groups of equal size • Uses sharing for division • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Models multiplication and division algorithms using arrays (whole numbers) • Instantly recalls division facts with dividend and divisors less than 10 • Solves real-world whole number problems involving addition and subtraction • 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 • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances) • Solves 1-step open sentences with missing addends (numbers 100 and under)	• Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only) • Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given • Solves real-world whole number addition problems with sums to 20 (change unknown) • Solves real-world whole number problems involving subtraction with numbers 100 and under • Solves real-world whole number problems involving subtraction with numbers under 1000 • Solves whole number subtraction word problems with numbers over 1000 • Solves problems using the inverse relationship between addition and subtraction • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Solves word problems involving basic whole number multiplication facts to 10 x 10 • Solves word problems involving whole number multiplication with numbers greater than 10 x 10 • Uses manipulatives to divide a small set of objects into groups of equal size • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Instantly recalls division facts with dividend and divisors less than 10 • Instantly recalls division facts with dividend and divisors less than 13 • Solves word problems with whole number division facts with dividend and divisors less than 11 • Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) • 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 • Uses algebraic reasoning to solve problems involving equality relationships • Solves 1-step open sentences with missing addends (numbers 100 and under)	• Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only) • Solves real-world whole number problems involving subtraction with numbers 100 and under (analysis) • Solves whole number subtraction word problems with numbers over 1000 • Solves problems using the inverse relationship between addition and subtraction • Solves word problems involving whole number multiplication with numbers greater than 10 x 10 • Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) • Instantly recalls division facts with dividend and divisors less than 13 • Performs mental computation with division • Solves word problems with whole number division facts with dividend and divisors less than 11 • Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) • Solves whole number word problems with division over 10 x 10 • Determines the remainder in a real-world problem (whole numbers) • Uses division for multiple-step real-world problems (whole numbers) • Evaluates numerical expressions using grouping symbols (whole numbers only) • Solves real-world problems involving 2-step multiple operations, whole numbers only • Demonstrates an understanding of the commutative property of multiplication with simple problems • 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 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 1-step problem to a symbolic expression or equation

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 191 - 200
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Determines the operation needed from a simple problem • Writes a number sentence for a simple problem solving situation • Interprets a chart or table - calculation required • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7) • Distinguishes between odd and even numbers	• Solves simple open sentences with missing factors (numbers 100 and under) • Solves 2-step open sentences with missing addends • Determines the operation needed from a simple problem • Translates a 1-step problem to a symbolic expression or equation • Interprets a chart or table - calculation required • Solves problems using tables • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7) • Distinguishes between odd and even numbers	• Translates a 2-step problem to a symbolic expression or equation • Solves problems using tables • Uses number sense strategies to solve problems (addition/subtraction only)
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and Relationships
• Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule	• Extends a growing arithmetic pattern, defined by objects or diagrams • Analyzes a growing, arithmetic pattern with numbers to determine the rule • Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) • Identifies numbers as composite	• 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) • Determines the rule and completes a simple function machine output • Predicts from simple charts and tables
New Vocabulary: gave, left, row, unifix cubes	*New Vocabulary:* composite number, each, prime number	*New Vocabulary:* minimum, plus
New Signs and Symbols: ÷ division, long division symbol	*New Signs and Symbols:* °F degrees Fahrenheit, $ dollar sign, lb pound	*New Signs and Symbols:* ¢ cent sign, = is equal to, + positive number

Explanatory Notes
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DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 201 - 210
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only)	• Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only)	• Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only)
• Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given	• Solves real-world whole number problems involving subtraction with numbers 100 and under (analysis)	• Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only)
• Solves real-world whole number addition problems with sums to 20 (change unknown)	• Solves whole number subtraction word problems with numbers over 1000	• Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)
• Solves real-world whole number problems involving subtraction with numbers 100 and under	• Solves problems using the inverse relationship between addition and subtraction	• Performs mental computation with division
• Solves real-world whole number problems involving subtraction with numbers under 1000	• Solves word problems involving whole number multiplication with numbers greater than 10 x 10	• Solves whole number word problems with division over 10 x 10
• Solves whole number subtraction word problems with numbers over 1000	• Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)	• Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor)
• Solves problems using the inverse relationship between addition and subtraction	• Instantly recalls division facts with dividend and divisors less than 13	• Solves real-world problems involving 2-step multiple operations, whole numbers only
• Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12	• Performs mental computation with division	• Solves real-world multiple-step problems involving whole numbers
• Solves word problems involving basic whole number multiplication facts to 10 x 10	• Solves word problems with whole number division facts with dividend and divisors less than 11	• Predicts the relative size of the answer when multiplying whole numbers
• Solves word problems involving whole number multiplication with numbers greater than 10 x 10	• Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)	• Demonstrates an understanding of the inverse relationship between addition and subtraction
• Uses manipulatives to divide a small set of objects into groups of equal size	• Solves whole number word problems with division over 10 x 10	• Demonstrates an understanding of the commutative property of multiplication with simple problems
• Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction)	• Determines the remainder in a real-world problem (whole numbers)	• Demonstrates an understanding of the associative property of multiplication
• Instantly recalls division facts with dividend and divisors less than 10	• Uses division for multiple-step real-world problems (whole numbers)	• Demonstrates an understanding of the distributive property of multiplication by decomposing a term
• Instantly recalls division facts with dividend and divisors less than 13	• Evaluates numerical expressions using grouping symbols (whole numbers only)	• Understands equivalence and extends the concept to number sentences involving variables (e.g., 8 + 2 = [] + 2)
• Solves word problems with whole number division facts with dividend and divisors less than 11	• Solves real-world problems involving 2-step multiple operations, whole numbers only	• Uses algebraic reasoning to solve problems involving equality relationships
• Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)	• Demonstrates an understanding of the commutative property of multiplication with simple problems	• Uses simple linear equations to represent problem situations
• Evaluates numerical expressions using grouping symbols (whole numbers only)	• Understands equivalence and extends the concept to number sentences involving variables (e.g., 8 + 2 = [] + 2)	• Solves simple open sentences with missing factors (numbers over 100)
• Demonstrates an understanding of the commutative property of multiplication with simple problems	• Uses algebraic reasoning to solve problems involving equality relationships	• Solves open sentences using the distributive property
• Demonstrates an understanding of the zero property of multiplication	• Uses simple linear equations to represent problem situations	• Solves open sentences with calculations on both sides of the sentence
• Uses algebraic reasoning to solve problems involving equality relationships	• Describes a realistic situation using information given in a linear equation	• Applies algebraic methods to solve theoretical problems
• Solves 1-step open sentences with missing addends (numbers 100 and under)	• Solves simple open sentences with missing factors (numbers 100 and under)	• Uses pictures to represent problems
	• Solves 2-step open sentences with missing addends	• Translates a 2-step problem to a symbolic expression or equation
	• Solves open sentences with basic-facts calculations on both sides of the sentence	
	• Translates a 1-step problem to a symbolic expression or equation	

Explanatory Notes

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DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 201 - 210
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Solves simple open sentences with missing factors (numbers 100 and under) • Solves 2-step open sentences with missing addends • Determines the operation needed from a simple problem • Translates a 1-step problem to a symbolic expression or equation • Interprets a chart or table - calculation required • Solves problems using tables • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7) • Distinguishes between odd and even numbers	• Translates a 2-step problem to a symbolic expression or equation • Solves problems using tables • Uses number sense strategies to solve problems (addition/subtraction only)	
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and Relationships
• Extends a growing arithmetic pattern, defined by objects or diagrams • Analyzes a growing, arithmetic pattern with numbers to determine the rule • Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) • Identifies numbers as composite	• 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) • Determines the rule and completes a simple function machine output • Predicts from simple charts and tables	• Completes a function table given a simple rule (e.g., x + 2) • Determines the rule given a simple real-world function table (e.g., # Dogs compared to # Legs) • Determines the rule and completes a simple function machine output • Looks for a growing pattern to solve a problem • Determines factors of whole numbers • Identifies numbers as prime
New Vocabulary: composite number, each, prime number	*New Vocabulary:* minimum, plus	*New Vocabulary:* None
New Signs and Symbols: °F degrees Fahrenheit, $ dollar sign, lb pound	*New Signs and Symbols:* ¢ cent sign, = is equal to, + positive number	*New Signs and Symbols:* ( ) parenthesis around an integer, { } set notation

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 211 - 220
Statements Last Updated: Sep 23, 2013

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
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only) • Solves real-world whole number problems involving subtraction with numbers 100 and under (analysis) • Solves whole number subtraction word problems with numbers over 1000 • Solves problems using the inverse relationship between addition and subtraction • Solves word problems involving whole number multiplication with numbers greater than 10 x 10 • Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) • Instantly recalls division facts with dividend and divisors less than 13 • Performs mental computation with division • Solves word problems with whole number division facts with dividend and divisors less than 11 • Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) • Solves whole number word problems with division over 10 x 10 • Determines the remainder in a real-world problem (whole numbers) • Uses division for multiple-step real-world problems (whole numbers) • Evaluates numerical expressions using grouping symbols (whole numbers only) • Solves real-world problems involving 2-step multiple operations, whole numbers only • Demonstrates an understanding of the commutative property of multiplication with simple problems • 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 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 1-step problem to a symbolic expression or equation	• Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) • Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) • Performs mental computation with division • Solves whole number word problems with division over 10 x 10 • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Solves real-world problems involving 2-step multiple operations, whole numbers only • Solves real-world multiple-step problems involving whole numbers • Predicts the relative size of the answer when multiplying whole numbers • 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 • 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 • Applies algebraic methods to solve theoretical problems • Uses pictures to represent problems • Translates a 2-step problem to a symbolic expression or equation	• Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) • Models algorithms using place value concepts (multiplication and division with whole numbers) • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Solves real-world multiple-step problems involving whole numbers • Demonstrates an understanding of multiple properties • Represents relationships of quantities in the form of an expression • Solves open sentences with calculations on both sides of the sentence • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems • Uses pictures to represent problems • Uses multiple number theory concepts to solve problems (e.g., factors, digits, odd/even, divisibility)

Explanatory Notes

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DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 211 - 220
Statements Last Updated: Sep 23, 2013

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
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Translates a 2-step problem to a symbolic expression or equation • Solves problems using tables • Uses number sense strategies to solve problems (addition/subtraction only)		
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and 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) • Determines the rule and completes a simple function machine output • Predicts from simple charts and tables	• Completes a function table given a simple rule (e.g., x + 2) • Determines the rule given a simple real-world function table (e.g., # Dogs compared to # Legs) • Determines the rule and completes a simple function machine output • Looks for a growing pattern to solve a problem • Determines factors of whole numbers • Identifies numbers as prime	• Extends a growing pattern of triangular numbers, defined by objects or diagrams • Looks for a growing pattern to solve a problem • Determines factors of whole numbers • Uses factor and multiple concepts to solve simple problems
New Vocabulary: minimum, plus	*New Vocabulary:* None	*New Vocabulary:* None
New Signs and Symbols: ¢ cent sign, = is equal to, + positive number	*New Signs and Symbols:* ( ) parenthesis around an integer, { } set notation	*New Signs and Symbols:* None

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 221 - 230
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
Represent and Solve Problems	**Represent and Solve Problems**	**Represent and Solve Problems**
• Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) • Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) • Performs mental computation with division • Solves whole number word problems with division over 10 x 10 • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Solves real-world problems involving 2-step multiple operations, whole numbers only • Solves real-world multiple-step problems involving whole numbers • Predicts the relative size of the answer when multiplying whole numbers • 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 • 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 • Applies algebraic methods to solve theoretical problems • Uses pictures to represent problems • Translates a 2-step problem to a symbolic expression or equation	• Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) • Models algorithms using place value concepts (multiplication and division with whole numbers) • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Solves real-world multiple-step problems involving whole numbers • Demonstrates an understanding of multiple properties • Represents relationships of quantities in the form of an expression • Solves open sentences with calculations on both sides of the sentence • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems • Uses pictures to represent problems • Uses multiple number theory concepts to solve problems (e.g., factors, digits, odd/even, divisibility)	• Models algorithms using place value concepts (multiplication and division with whole numbers) • Evaluates numerical expressions using the order of operations (whole numbers only) • Solves multiple-step problems involving proportions • Represents relationships of quantities in the form of an expression • Applies algebraic methods to solve real-world problems • Solves problems comparing unit prices • Uses pictures to represent problems
Analyze Patterns and Relationships	**Analyze Patterns and Relationships**	**Analyze Patterns and Relationships**
• Completes a function table given a simple rule (e.g., x + 2) • Determines the rule given a simple real-world function table (e.g., # Dogs compared to # Legs) • Determines the rule and completes a simple function machine output	• Extends a growing pattern of triangular numbers, defined by objects or diagrams • Looks for a growing pattern to solve a problem • Determines factors of whole numbers	

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 221 - 230
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and Relationships
• Looks for a growing pattern to solve a problem • Determines factors of whole numbers • Identifies numbers as prime	• Uses factor and multiple concepts to solve simple problems	
New Vocabulary: None	*New Vocabulary:* None	*New Vocabulary:* None
New Signs and Symbols: ( ) parenthesis around an integer, { } set notation	*New Signs and Symbols:* None	*New Signs and Symbols:* None

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 231 - 240
Statements Last Updated: Sep 23, 2013

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
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) • Models algorithms using place value concepts (multiplication and division with whole numbers) • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Solves real-world multiple-step problems involving whole numbers • Demonstrates an understanding of multiple properties • Represents relationships of quantities in the form of an expression • Solves open sentences with calculations on both sides of the sentence • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems • Uses pictures to represent problems • Uses multiple number theory concepts to solve problems (e.g., factors, digits, odd/even, divisibility)	• Models algorithms using place value concepts (multiplication and division with whole numbers) • Evaluates numerical expressions using the order of operations (whole numbers only) • Solves multiple-step problems involving proportions • Represents relationships of quantities in the form of an expression • Applies algebraic methods to solve real-world problems • Solves problems comparing unit prices • Uses pictures to represent problems	• Solves multiple-step problems involving proportions • Applies algebraic methods to solve real-world problems • Uses reasoning strategies to solve problems
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and Relationships
• Extends a growing pattern of triangular numbers, defined by objects or diagrams • Looks for a growing pattern to solve a problem • Determines factors of whole numbers • Uses factor and multiple concepts to solve simple problems		
New Vocabulary: None	*New Vocabulary:* None	*New Vocabulary:* None
New Signs and Symbols: None	*New Signs and Symbols:* None	*New Signs and Symbols:* None

Explanatory Notes
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DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: 241 - 250
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) > 250
Represent and Solve Problems	Represent and Solve Problems	Represent and Solve Problems
• Models algorithms using place value concepts (multiplication and division with whole numbers) • Evaluates numerical expressions using the order of operations (whole numbers only) • Solves multiple-step problems involving proportions • Represents relationships of quantities in the form of an expression • Applies algebraic methods to solve real-world problems • Solves problems comparing unit prices • Uses pictures to represent problems	• Solves multiple-step problems involving proportions • Applies algebraic methods to solve real-world problems • Uses reasoning strategies to solve problems	• Uses reasoning strategies to solve problems
Analyze Patterns and Relationships	Analyze Patterns and Relationships	Analyze Patterns and Relationships
New Vocabulary: None	*New Vocabulary:* None	*New Vocabulary:* None
New Signs and Symbols: None	*New Signs and Symbols:* None	*New Signs and Symbols:* None

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.

DesCartes: A Continuum of Learning®

Mathematics

Goal: Operations and Algebraic Thinking

RIT Score Range: > 250
Statements Last Updated: Sep 23, 2013

Skills and Concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) > 250
Represent and Solve Problems	Represent and Solve Problems
• Solves multiple-step problems involving proportions • Applies algebraic methods to solve real-world problems • Uses reasoning strategies to solve problems	• Uses reasoning strategies to solve problems
Analyze Patterns and Relationships	Analyze Patterns and Relationships
New Vocabulary: None	*New Vocabulary:* None
New Signs and Symbols: None	*New Signs and Symbols:* None

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.