DesCartes: A Continuum of Learning®

Mathematics

Goal: The Real and Complex Number Systems

RIT Score Range: 241 - 250
Statements Last Updated: Mar 10, 2014

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*) 251 - 260
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
• Uses estimation to solve problems involving proportional reasoning (decimals only) • Solves real-world problems involving decimals (not money) using multiplication • Solves problems involving equivalent fractions (analysis) • Solves problems involving ratios • Solves multiple-step problems involving proportions • Calculates a percent of a number (e.g., 6% of 30) • Calculates the percent one number is of another (e.g., 20 is what % of 90) • Solves problems involving percents • Solves problems involving percents (analysis) • Solves problems involving simple percent discounts (e.g., finding sale price) • Solves problems involving percent increase and decrease • Solves problems involving tax and tips • Calculates commission/deductions and total pay • Converts between millimeters, centimeters, meters, and kilometers • Uses dimensional analysis for unit conversions (length) • Converts between the customary and metric system given conversion ratios (2-step, length) • Apply dimensional analysis to simple real-world problems (length) • Solves problems involving length in the customary system and converts to larger or smaller units • Converts between grams and kilograms • Solves problems involving weight in the customary system and converts to larger or smaller units • Converts within the metric system • Apply dimensional analysis to simple real-world problems (capacity) • Solves problems involving capacity in the customary system and converts to larger or smaller units • Solves complex problems involving miles per gallon • Solves problems comparing unit prices • Solves problems involving rates • Interprets data given in circle graphs to solve complex problems (with percents) • Expresses a percent as a fraction and vice versa • Writes a ratio as a percent and vice versa • Identifies the ratio from a given real-world situation	• Solves real-world problems involving decimals (not money) using multiplication • Solves multiple-step problems involving proportions • Solves problems involving a fractional increase • Calculates the percent one number is of another (e.g., 20 is what % of 90) • Calculates a percent of a rational number (e.g., 6% of 0.78) • Solves problems involving percents (analysis) • Solves problems involving simple percent discounts (e.g., finding sale price) • Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) • Calculates commission/deductions and total pay • Solves problems involving successive discounts • Uses dimensional analysis for unit conversions (length) • Apply dimensional analysis to simple real-world problems (length) • Solves problems involving weight in the customary system and converts to larger or smaller units • Uses dimensional analysis for unit conversions (time) • Solves problems involving rate conversions (e.g., mi/hr to ft/sec) • Identifies the ratio from a given real-world situation	• Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) • Solves problems involving successive discounts • Uses dimensional analysis for unit conversions (time) • Solves problems involving rate conversions (e.g., mi/hr to ft/sec)

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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Perform Operations	Perform Operations	Perform Operations
• Divides multiple-digit numbers • Divides numbers by powers of 10 • Adds fractions with unlike denominators with reducing or converting to a mixed fraction • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) • Adds mixed fractions where converting from improper fractions is necessary • Subtracts whole numbers, fractions, and mixed fractions • Subtracts whole numbers, fractions, and mixed fractions with regrouping • Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary • Uses models to multiply and divide fractions and connect the actions to algorithms • Multiplies mixed fractions • Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms • Divides a fraction by a fraction • Divides a fraction by a whole number • Divides a whole number by a fraction • Divides a mixed fraction by a whole number • Divides a whole number by a mixed fraction • Divides a mixed fraction by a fraction • Divides a fraction by a mixed fraction • Divides a mixed fraction by a mixed fraction • Solves 2- or more step real-world problems involving fractions with multiplication and division • Solves problems involving fractions (e.g., multiple operations, conversions) • Subtracts a decimal from a whole number, horizontally • Multiplies a decimal by 10, 100, 1000 • Divides a whole number by a decimal • Divides a decimal by 10, 100, 1000 • Divides a decimal by a decimal • Adds integers with unlike signs • Adds several positive and negative integers • Subtracts integers • Solves problems involving addition and subtraction of integers	• Uses a number line to determine the distance between a positive and negative number • Subtracts integers • Uses the multiplicative inverse property with rational numbers • Uses factor and multiple concepts to solve difficult problems • Identifies the least common multiple of whole numbers	• Uses the additive inverse property with rational numbers • Performs operations on complex numbers and expresses the results in simplest form • Uses factor and multiple concepts to solve difficult problems

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Perform Operations	Perform Operations	Perform Operations
• Multiplies integers with like signs • Divides integers with like signs • Subtracts rational expressions in decimal form • Multiplies rational expressions • Identifies the additive inverse property • Interprets data given in tables to solve problems • Writes a fraction as a decimal and vice versa • Writes a fraction as a mixed decimal and vice versa		
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
• Simplifies rational expressions with absolute value • Graphs ordered pairs in all quadrants • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) • Determines the relative magnitude of whole numbers • Writes whole numbers in standard and exponential form • Compares fractions (e.g., comparing numerators and denominators) • Rounds decimals to the nearest hundredth • Compares and orders decimal and fractional coordinates on a number line	• Estimates the square roots of numbers • Simplifies expressions containing square roots • Uses expressions with absolute value to represent situations • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)	• Simplifies expressions containing square roots • Simplifies radical expressions • Uses expressions with absolute value to represent situations
New Vocabulary: discount, equality	*New Vocabulary:* feet per second, least common multiple	*New Vocabulary:* None
New Signs and Symbols: || absolute value, oz ounce	*New Signs and Symbols:* LCM lowest common multiple, sec second, square root symbol	*New Signs and Symbols:* i square root of -1

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