

Math DesCartes: Numbers and Operations

Skills: Computation Strategies – Multiplication and Division

Students:	DesCartes Skills: (Highlight the skills related to your chosen standard/concept)	
	RIT 251-260: <ul style="list-style-type: none"> • Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) • Performs basic operations on matrices 	<ul style="list-style-type: none"> • 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 • Performs basic operations on matrices
	RIT 241-250: <ul style="list-style-type: none"> • Solves real-world problems involving multiplication and division of integers (analysis) • 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 simple interest rates without the formula • Performs basic operations on matrices 	RIT 221-230: <ul style="list-style-type: none"> • Uses multiplication strategies to explain computation (e.g., doubles, 9-patterns, decomposing, partial products) • Multiplies multiple-digit numbers • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Divides numbers by powers of 10 • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Uses division for multiple-step real-world problems (whole numbers) • Multiplies a fraction by a fraction without reducing to simplest form (complex problem) • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • Multiplies mixed fractions • Divides a fraction by a fraction • Divides a mixed fraction by a fraction • Solves 1-step real-world problems involving fractions with multiplication and division • Solves 2- or more step real-world problems involving fractions with multiplication and division • Solves problems involving fractions (e.g., multiple operations, conversions) • Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) • Multiplies a decimal by a decimal (factors to hundredths) • Multiplies a decimal by 10, 100, 1000 • Multiplies a decimal by a decimal (factors to thousandths) • Solves real-world problems involving rate of pay • Divides a decimal by 10, 100, 1000 • Divides a decimal by a decimal • Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division) • Computes the value of multiple bills and coins (multiplication/division) • Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) • Multiplies integers with unlike signs • Divides integers with unlike signs • Solves real-world problems involving multiplication and division of integers (analysis) • Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%) • Calculates a percent of a number (e.g., 6% of 30) • Calculates a number from a percent (e.g., 4 is 9% of what) • Adds and subtracts percent • Solves problems involving percents • Solves problems involving tax and tips
	RIT 231-240: <ul style="list-style-type: none"> • Divides multiple-digit numbers • Uses appropriate algorithms to represent multiplication or division with whole numbers • Multiplies mixed fractions • 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) • Multiplies a decimal by 10, 100, 1000 • Solves real-world problems involving rate of pay • Solves real-world problems involving rate of pay with time and a half • Divides a whole number by a decimal • Divides a decimal by 10, 100, 1000 • Divides a decimal by a decimal • Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) • Multiplies integers with like signs • Divides integers with like signs • Solves real-world problems involving multiplication and division of integers (analysis) • Multiplies rational expressions • Divides rational expressions in a/b form • Calculates sums combining fractions, decimals, and percents • 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) 	

Math DesCartes: Numbers and Operations

Skills: Computation Strategies – Multiplication and Division

	<ul style="list-style-type: none"> • Solves problems involving simple interest rates with the formula • Solves problems comparing percents, fractions, and decimals 		<p>RIT 201-210:</p> <ul style="list-style-type: none"> • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Instantly recalls basic multiplication and division facts in a table • Multiplies a 2-digit number by a 1-digit number with regrouping • Multiplies a 3- or 4-digit number by a 1-digit number • Multiplies multiple 1-digit numbers • Multiplies a 2-digit number by a 2-digit number with no regrouping • Multiplies a 2-digit number by a 2-digit number with regrouping • Multiplies a 3-digit number by a 2-digit number with regrouping • Performs mental computation with multiplication • Multiplies a 2- or 3-digit number by multiples of 10 or 100 • Multiplies a 3-digit number by a 3-digit number • Solves word problems involving whole number multiplication with numbers greater than 10 x 10 • Instantly recalls division facts with dividend and divisors less than 13 • Divides a 1-digit number by a 1-digit number with a remainder • Divides a 2-digit number by a 1-digit number with no remainder • Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder • Performs mental computation with division • Divides a 3-digit number by a 1-digit number with no remainder • Divides a 4-digit number by a 1-digit number with no remainder • Divides a 4-digit number by a 1-digit number with a remainder • Divides a 2-digit number by a 2-digit number with a remainder • Divides 3-digit number by multiple of 10 • Divides a 4-digit number by a 2-digit number • 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 • Multiplies a fraction by a fraction without reducing to simplest form (simple problem) • Multiplies a decimal by whole number • Divides decimal by a whole number • Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division) • Computes money problems with multiple operations (addition/subtraction only) • Computes addition, subtraction, multiplication, and division on multiple-step, real-world problems involving money
	<p>RIT 211-220:</p> <ul style="list-style-type: none"> • Instantly recalls basic multiplication and division facts in a table • Multiplies a 2-digit number by a 2-digit number with regrouping • Multiplies a 3-digit number by a 2-digit number with regrouping • Performs mental computation with multiplication • Multiplies a 3-digit number by a 3-digit number • Multiplies a 4- or more digit number by multiples of 100 or 1000 • Multiplies multiple-digit numbers • Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder • Performs mental computation with division • Divides a 4-digit number by a 1-digit number with no remainder • Divides a 4-digit number by a 1-digit number with a remainder • Divides a 3-digit number by a 2-digit number • Divides a 4-digit number by a 2-digit number • Solves problems using the inverse relationship between multiplication and division • Divides a whole number by a whole number and expresses the remainder as a decimal • Divides multiple-digit numbers • Uses strategies to determine 2 or more missing digits (multiplication/division only) • 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) • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • Solves 1-step real-world problems involving fractions with multiplication and division • Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) • Multiplies a decimal by a decimal (factors to hundredths) • Solves real-world problems involving decimals (not money) using multiplication • Divides decimal by a whole number • Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division) • Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division) • Computes addition, subtraction, multiplication, and division on multiple-step, real-world problems involving money • Multiplies integers with unlike signs • Divides integers with unlike signs • Solves real-world problems involving multiplication and division of integers • Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%) 		<p>RIT 191-200:</p> <ul style="list-style-type: none"> • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Multiplies a 2- or 3-digit number by a 1-

Math DesCartes: Numbers and Operations

Skills: Computation Strategies – Multiplication and Division

	<p>digit number with no regrouping</p> <ul style="list-style-type: none"> • Multiplies a 2-digit number by a 1-digit number with regrouping • Multiplies a 3- or 4-digit number by a 1-digit number • Multiplies a 2-digit number by a 2-digit number with no regrouping • Multiplies a 3-digit number by a 2-digit number with no regrouping • Performs mental computation with multiplication • Solves word problems involving basic whole number multiplication facts to 10×10 • Solves word problems involving whole number multiplication with numbers greater than 10×10 • Instantly recalls division facts with dividend and divisors less than 10 • Instantly recalls division facts with dividend and divisors less than 13 • Divides a 2-digit number by a 1-digit number with no remainder • Uses strategies to determine 1 missing digit (multiplication/division only) • 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 real-world 1-step problems involving multiplication or division of a whole number by a fraction • Multiplies a decimal by whole number • Computes half price (multiplication/division) • Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division) • Computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division) • Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%)
	<p>RIT 181-190:</p> <ul style="list-style-type: none"> • Multiplies basic facts to 10×10 vertically • Multiplies a 2-digit number by a 1-digit number with regrouping • Solves word problems involving basic whole number multiplication facts to 10×10 • Instantly recalls division facts with dividend and divisors less than 10 • Solves word problems with whole number division facts with dividend and divisors less than 11 involving money
	<p>RIT 171-180:</p> <ul style="list-style-type: none"> • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Multiplies basic facts to 10×10 vertically
	<p>RIT 161-170:</p> <ul style="list-style-type: none"> • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12

Lesson Title:

Standard/Concept for All:

Introduction: (Get Attention; Connect to Prior Knowledge)

For Students Ready for a Challenge:

Lesson/Activity:

Resources:

Means of Assessment:

For Most Students:

Lesson/Activity:

Resources:

Means of Assessment:

For Students Needing Extra Support:

Lesson/Activity:

Resources:

Means of Assessment:

Closure/Summary for All:

