

Mathematics RIT Score Range: < 161

Goal: The Real and Complex Number Systems

Skills and Concepts to Develop (50% Probability*) < 161	Skills and Concepts to Introduce (27% Probability*) 161 - 170
Ratios and Proportional Relationships	Ratios and Proportional Relationships
	Completes a growing arithmetic pattern by naming missing members
Perform Operations	Perform Operations
Adds 1-digit to multiple-digit number with regrouping	Adds 1-digit to multiple-digit number with regrouping
Adds 1-digit to multiple-digit number with no regrouping	Adds 2-digit numbers with no regrouping
<ul> <li>Uses models to construct whole number addition facts with addends through 10</li> </ul>	Solves real-world whole number addition problems with sums to 20 (result unknown)
• Uses models to calculate whole number sums through 99	Subtracts two 1-digit numbers horizontally
Adds two 1-digit numbers with sums to 10 in horizontal format	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
	Subtracts a 2-digit number from a 2-digit number, with no regrouping
	Tells time to the nearest hour
	Tells time to the nearest half hour
	Uses a number line to construct addition facts with sums through 20 (whole numbers)
	Uses models to calculate whole number sums through 99
	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
	Adds multiple 1-digit numbers
	Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens)
	Adds 1-digit to multiple-digit number with no regrouping
Extend and Use Properties	Extend and Use Properties
• Identifies whole numbers under 100 using base-10 blocks	Identifies missing numbers in a series through 100
• Identifies the numerical and written name for whole numbers 11 to 20	Writes whole numbers in standard and expanded form through the tens
(e.g., 15 is fifteen, and vice versa)	Orders whole numbers less than 10
	Identifies whole numbers under 100 using base-10 blocks
	Identifies the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa)
	Counts 1 to 10 objects
	Recognizes and generates equivalent forms for the same number using physical models for whole numbers 11 to 20
New Vocabulary: None	New Vocabulary: None
New Signs and Symbols: None	New Signs and Symbols: + addition, = is equal to, × multiplication, - subtraction, : used with time, variable

#### **Explanatory Notes**



Mathematics RIT Score Range: 161 - 170

Goal: The Real and Complex Number Systems

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
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
	Completes a growing arithmetic pattern by naming missing members	Completes a growing arithmetic pattern by naming missing members
		Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour)
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Adds 1-digit to multiple-digit number with regrouping</li> </ul>	Adds 1-digit to multiple-digit number with regrouping	Adds 3-digit numbers with no regrouping
<ul> <li>Adds 1-digit to multiple-digit number with no regrouping</li> </ul>	Adds 2-digit numbers with no regrouping	Subtracts a 2-digit number from a 2-digit number, with no regrouping
<ul> <li>Uses models to construct whole number addition facts with addends</li> </ul>	Solves real-world whole number addition problems with sums to 20	Subtracts 2- and/or 3-digit numbers with no regrouping
through 10	(result unknown)	Solves real-world whole number problems involving subtraction with
<ul> <li>Uses models to calculate whole number sums through 99</li> </ul>	Subtracts two 1-digit numbers horizontally	numbers under 20
<ul> <li>Adds two 1-digit numbers with sums to 10 in horizontal format</li> </ul>	<ul> <li>Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)</li> </ul>	<ul> <li>Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12</li> </ul>
	Subtracts two 1-digit numbers vertically	Multiplies basic facts to 10 x 10 vertically
	<ul> <li>Instantly recalls basic multiplication facts where one factor is 0-5 and</li> </ul>	Adds 1-digit numbers with sums to 18 (with parentheses)
	the other factor is 0-12	Recognizes addition and subtraction fact families through 18
	Subtracts a 2-digit number from a 2-digit number, with no regrouping	Identifies the value of a collection of coins to \$1.00 (with pictures of
	Tells time to the nearest hour	coins)
	• Tells time to the nearest half hour	<ul> <li>Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money)</li> </ul>
	Uses a number line to construct addition facts with sums through 20 (whole numbers)	• Tells time to the nearest hour
	Uses models to calculate whole number sums through 99	Tells time to the nearest half hour
	Adds two 1-digit numbers with sums to 10 in horizontal format	Tells time to the nearest 5 minutes
	Adds two 1-digit numbers with sums between 10 and 19 in horizontal	Connects money with place value
	format	Determines the operation needed from a simple problem
	<ul> <li>Adds two 1-digit numbers with sums between 10 and 19 in vertical format</li> </ul>	Uses a number line to construct addition facts with sums through 20 (whole numbers)
	Adds multiple 1-digit numbers	Uses models to calculate whole number sums through 999
	<ul> <li>Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens)</li> </ul>	Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens)
	Adds 1-digit to multiple-digit number with no regrouping	Adds two or three 2-digit number with regrouping
		Adds 1- and/or 2-digit numbers with sums under 100
		Adds 3-digit numbers, with regrouping, with sums under 1000
		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)
		Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)

#### **Explanatory Notes**



Mathematics RIT Score Range: 161 - 170

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
		• Subtracts a 1-digit number from a 2-digit number with no regrouping, vertically
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Identifies whole numbers under 100 using base-10 blocks     Identifies the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa)	Identifies missing numbers in a series through 100 Writes whole numbers in standard and expanded form through the tens Orders whole numbers less than 10 Identifies whole numbers under 100 using base-10 blocks Identifies the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa) Counts 1 to 10 objects Recognizes and generates equivalent forms for the same number using physical models for whole numbers 11 to 20	Represents 1/2 with a diagram or model Identifies the place value and value of each digit in whole numbers through the tens place Compares whole numbers through 999 Counts objects that are grouped into tens and ones Represents 1/4 with a diagram or model Identifies whole numbers 100 - 999 using base-10 blocks Identifies the numerical and written name for whole numbers 21 to 100 (e.g., 62 is sixty-two, and vice versa) Identifies one-half from a region or set Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa) Identifies missing numbers in a series through 100 Counts by 2's to 100 Counts backwards from a given number (given number greater than 10) Recognizes and generates equivalent forms for the same number using physical models for whole numbers 11 to 20 Compares sets of objects and identifies which is equal to, more than,
		or less than the other (1 to 10 objects)
New Vocabulary: None	New Vocabulary: None	New Vocabulary: fact family, fourth, hundred, morning, thirds, thousand
New Signs and Symbols: None	New Signs and Symbols: + addition, = is equal to, × multiplication, - subtraction, : used with time, variable	New Signs and Symbols: ( ) order of operations, a.m., $\phi$ cent sign, \$ dollar sign, p.m.,   tally mark

#### **Explanatory Notes**



Mathematics

Goal: The Real and Complex Number Systems

RIT Score Range: 171 - 180

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
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
Completes a growing arithmetic pattern by naming missing members	Completes a growing arithmetic pattern by naming missing members     Computes simple conversions among units of time (minutes in an	Completes arithmetic growth patterns in number tables by identifying the missing elements
	hour, half hour, quarter hour)	Computes simple conversions among units of time (days, weeks)
Perform Operations	Perform Operations	Perform Operations
Adds 1-digit to multiple-digit number with regrouping	Adds 3-digit numbers with no regrouping	Performs mental subtraction with numbers under 1000
Adds 2-digit numbers with no regrouping	Subtracts a 2-digit number from a 2-digit number, with no regrouping	Solves problems using the inverse relationship between addition and
Solves real-world whole number addition problems with sums to 20	Subtracts 2- and/or 3-digit numbers with no regrouping	subtraction
(result unknown)	Solves real-world whole number problems involving subtraction with	Uses counting by multiples for multiplication
Subtracts two 1-digit numbers horizontally	numbers under 20	Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12
<ul> <li>Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)</li> </ul>	<ul> <li>Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12</li> </ul>	Multiplies basic facts to 10 x 10 vertically
Subtracts two 1-digit numbers vertically	Multiplies basic facts to 10 x 10 vertically	Multiplies a 2-digit number by a 1-digit number with regrouping
Instantly recalls basic multiplication facts where one factor is 0-5 and	Adds 1-digit numbers with sums to 18 (with parentheses)	Multiplies a 2-digit number by a 2-digit number with no regrouping
the other factor is 0-12	Recognizes addition and subtraction fact families through 18	Solves word problems involving basic whole number multiplication
• Subtracts a 2-digit number from a 2-digit number, with no regrouping	Identifies the value of a collection of coins to \$1.00 (with pictures of	facts to 10 x 10
Tells time to the nearest hour	coins)	Uses manipulatives to divide a small set of objects into groups of equal
Tells time to the nearest half hour	• Identifies the value of a collection of coins and bills to \$10.00 by	Size
Uses a number line to construct addition facts with sums through 20 (whole numbers)	"counting on" (with picture of money)  • Tells time to the nearest hour	Uses sharing for division     Models whole number multiplication and division algorithms (e.g.,
Uses models to calculate whole number sums through 99	Tells time to the nearest hour     Tells time to the nearest half hour	shows multiplication as repeated addition and division as repeated
Adds two 1-digit numbers with sums to 10 in horizontal format	Tells time to the nearest 5 minutes	subtraction)
Adds two 1-digit numbers with sums between 10 and 19 in horizontal	Connects money with place value	Models multiplication and division algorithms using arrays (whole numbers)
format	Determines the operation needed from a simple problem	Instantly recalls division facts with dividend and divisors less than 10
<ul> <li>Adds two 1-digit numbers with sums between 10 and 19 in vertical</li> </ul>	Uses a number line to construct addition facts with sums through 20	Solves real-world whole number problems involving addition and
format	(whole numbers)	subtraction
Adds multiple 1-digit numbers     Head strategies for addition foots (a.g., compatible numbers acquiring).	Uses models to calculate whole number sums through 999	Recognizes addition and subtraction fact families through 18
<ul> <li>Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens)</li> </ul>	<ul> <li>Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens)</li> </ul>	Demonstrates an understanding of the inverse relationship between multiplication and division
<ul> <li>Adds 1-digit to multiple-digit number with no regrouping</li> </ul>	Adds two or three 2-digit number with regrouping	Adds decimals to the hundredths place (same number of digits)
	Adds 1- and/or 2-digit numbers with sums under 100	Identifies the value of a collection of coins to \$1.00 (without picture of
	Adds 3-digit numbers, with regrouping, with sums under 1000	coins)
	Solves real-world whole number addition problems with sums to 20	Adds money with regrouping
	(result unknown)  • Solves real-world whole number addition problems with sums to 20	Identifies the value of a collection of coins and bills to \$10.00 by     "counting on" (with picture of money)
	(start unknown)	Finds equivalent combinations of coins with the same value
	Solves real-world whole number addition problems with sums to 100 (result unknown)	Combines a collection of coins and identifies the correct notation
`	Subtracts a 1-digit number from a 2-digit number that is less than 20	Makes change to \$1.00 by "counting on" or subtracting
	(whole numbers only)	Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only)

#### **Explanatory Notes**



Mathematics RIT Score Range: 171 - 180

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
	Subtracts a 1-digit number from a 2-digit number with no regrouping, vertically	Computes 1 operation on addition or subtraction real-world problems involving money up to \$5.00
		• Identifies the correct time, given the words, and vice versa
		Determines elapsed clock time
		Determines elapsed time under 1 hour or to the hour
		Determines elapsed time involving whole hours, whole days, whole years
		Tells time to the nearest 5 minutes
		Determines the operation needed from a simple problem
		• Identifies the number that is "1 less than" a given number
		Distinguishes between odd and even numbers
		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
		Adds two or three 2-digit number with regrouping
		Adds 3-digit numbers, with regrouping, with sums under 1000
		<ul> <li>Performs mental computation with 2, 3, or 4 addends</li> </ul>
		<ul> <li>Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000</li> </ul>
		Adds multiple-digit numbers, with regrouping, with sums over 1000
		Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given
		<ul> <li>Solves real-world whole number addition problems with sums to 100 (result unknown)</li> </ul>
		Uses models to calculate differences through 100 (whole numbers)
		Instantly recalls basic subtraction facts with minuend less than 10
		Subtracts a 2-digit number from a 2-digit number, with regrouping
		<ul> <li>Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)</li> </ul>
		Subtracts 2- and/or 3-digit numbers with no regrouping
		Subtracts 3- or 4-digit numbers with regrouping
		Subtracts multiple-digit numbers with no regrouping
		<ul> <li>Solves real-world whole number problems involving subtraction with numbers under 20</li> </ul>
		Solves real-world whole number problems involving subtraction with numbers 100 and under
xtend and Use Properties	Extend and Use Properties	Extend and Use Properties
Identifies missing numbers in a series through 100	Represents 1/2 with a diagram or model	Counts objects that are grouped into tens and ones
<ul> <li>Writes whole numbers in standard and expanded form through the tense</li> <li>Orders whole numbers less than 10</li> </ul>	Identifies the place value and value of each digit in whole numbers through the tens place	Compares and orders decimals to the hundredths place (same numb of digits after decimal)

#### **Explanatory Note**



Mathematics RIT Score Range: 171 - 180

Goal: The Real and Complex Number Systems

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
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
<ul> <li>Identifies whole numbers under 100 using base-10 blocks</li> <li>Identifies the numerical and written name for whole numbers 11 to 20</li> </ul>	Compares whole numbers through 999     Counts objects that are grouped into tens and ones	Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa)
(e.g., 15 is fifteen, and vice versa)  • Counts 1 to 10 objects	Represents 1/4 with a diagram or model     Identifies whole numbers 100 - 999 using base-10 blocks	• Identifies the numeral and written name for whole numbers to 1000 to 9999 (e.g., 3456 is three thousand, four hundred fifty-six, and vice versa)
<ul> <li>Recognizes and generates equivalent forms for the same number using physical models for whole numbers 11 to 20</li> </ul>	Identifies the numerical and written name for whole numbers 21 to 100 (e.g., 62 is sixty-two, and vice versa)	Identifies the numeral and written name for whole numbers 10,000 to 100,000     Compares whole numbers through 999
	Identifies one-half from a region or set	Compares whole numbers through 9999
	Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa)	Rounds 2- and 3- digit whole numbers to the nearest ten
	Identifies missing numbers in a series through 100	Rounds 3-digit whole numbers to the nearest hundred
	• Counts by 2's to 100	• Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)
	Counts backwards from a given number (given number greater than 10)	Identifies the place value and value of each digit in whole numbers through the tens place
	Recognizes and generates equivalent forms for the same number using physical models for whole numbers 11 to 20	Identifies the place value and value of each digit in whole numbers through the hundreds place
	Compares sets of objects and identifies which is equal to, more than, or less than the other (1 to 10 objects)	Identifies the place value and value of each digit in whole numbers through the thousands
		Identifies the place value and value of each digit in whole numbers through the hundred thousands
		Represents 3/4 with a diagram or model
		Identifies equal parts by using models
		• Identifies 1/2 from a region or set
		Identifies one-half from a region or set
		Identifies 1/4 from a region or set
		• Identifies 2/4, 3/4, or 4/4 from a region or set
		• Identifies 2/3 or 3/3 from a region or set
		Identifies tenths from a region or set
		Identifies eighths from a region or set
		Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set
New Vocabulary: None	New Vocabulary: fact family, fourth, hundred, morning, thirds, thousand	New Vocabulary: changed, clock, closest, digit, fourths, gave, half past,
New Signs and Symbols: + addition, = is equal to, × multiplication, - subtraction, : used with time, variable	New Signs and Symbols: () order of operations, a.m., ¢ cent sign, \$ dollar sign, p.m.,   tally mark	how much time, hundreds, left, left over, million, nearest, noon, o'clock, one, pennies, quarter past, quarter to, row, ten thousand, unifix cubes, what time
		New Signs and Symbols: { } set notation, ÷ division, long division symbol, : used with time, : used with time

#### **Explanatory Notes**



Mathematics RIT Score Range: 181 - 190

Goal: The Real and Complex Number Systems

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
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
Completes a growing arithmetic pattern by naming missing members	Completes arithmetic growth patterns in number tables by identifying	Solves simple problems involving miles/kilometers per hour
• Computes simple conversions among units of time (minutes in an hour,	the missing elements	Converts between cups, pints, and quarts
half hour, quarter hour)	Computes simple conversions among units of time (days, weeks)	Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%)
		Computes simple conversions among units of time (minutes, hours)
		Converts between cups and pints
		Writes the missing number in a proportion using basic facts
Perform Operations	Perform Operations	Perform Operations
Adds 3-digit numbers with no regrouping	Performs mental subtraction with numbers under 1000	Determines elapsed time involving whole hours, whole days, whole
• Subtracts a 2-digit number from a 2-digit number, with no regrouping	Solves problems using the inverse relationship between addition and	years
<ul> <li>Subtracts 2- and/or 3-digit numbers with no regrouping</li> </ul>	subtraction	Multiplies a decimal by whole number
Solves real-world whole number problems involving subtraction with	Uses counting by multiples for multiplication	Uses rounding to estimate answers to real-world problems involving
numbers under 20	• Instantly recalls basic multiplication facts where one factor is 6-12 and	numbers less than 1000 with addition and subtraction (whole numbers only)
<ul> <li>Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12</li> </ul>	the other factor is 0-12  • Multiplies basic facts to 10 x 10 vertically	Uses rounding to estimate answers to addition and subtraction problems (whole numbers only)
<ul> <li>Multiplies basic facts to 10 x 10 vertically</li> </ul>	Multiplies a 2-digit number by a 1-digit number with regrouping	Adds two 3- and/or 4-digit numbers, with regrouping, with sums over
<ul> <li>Adds 1-digit numbers with sums to 18 (with parentheses)</li> </ul>	Multiplies a 2-digit number by a 2-digit number with no regrouping	1000
<ul> <li>Recognizes addition and subtraction fact families through 18</li> </ul>	Solves word problems involving basic whole number multiplication	Adds multiple-digit numbers, with regrouping, with sums over 1000
• Identifies the value of a collection of coins to \$1.00 (with pictures of	facts to 10 x 10	Adds multiple-digit numbers with sums under 1000
coins)	Uses manipulatives to divide a small set of objects into groups of equal size	Solves real-world whole number addition problems with sums to 20
<ul> <li>Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money)</li> </ul>	Uses sharing for division	(result unknown) - with extraneous information given
Tells time to the nearest hour	Models whole number multiplication and division algorithms (e.g.,	Solves real-world whole number addition problems with sums to 20 (change unknown)
Tells time to the nearest half hour	shows multiplication as repeated addition and division as repeated	Solves whole number addition word problems with sums over 1000
Tells time to the nearest 5 minutes	subtraction)	Subtracts 1-digit number from a 2-digit number with regrouping
Connects money with place value	Models multiplication and division algorithms using arrays (whole numbers)	Subtracts a 2-digit number from a 2-digit number, with regrouping
Determines the operation needed from a simple problem	Instantly recalls division facts with dividend and divisors less than 10	Uses strategies for sums and differences with 2-digit numbers (e.g.,
• Uses a number line to construct addition facts with sums through 20	Solves real-world whole number problems involving addition and	decomposing, compatible, compensation, partial sums, counting on)
(whole numbers)	subtraction	Subtracts a 2-digit number from a 3-digit number with a single
Uses models to calculate whole number sums through 999	Recognizes addition and subtraction fact families through 18	regrouping
<ul> <li>Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens)</li> </ul>	Demonstrates an understanding of the inverse relationship between multiplication and division	Subtracts 3- or 4-digit numbers with regrouping     Performs mental subtraction with numbers under 1000
Adds two or three 2-digit number with regrouping	Adds decimals to the hundredths place (same number of digits)	Subtracts multiple-digit numbers with no regrouping
Adds 1- and/or 2-digit numbers with sums under 100	Identifies the value of a collection of coins to \$1.00 (without picture of the collection)	Solves real-world whole number problems involving subtraction with
<ul> <li>Adds 3-digit numbers, with regrouping, with sums under 1000</li> </ul>	coins)	numbers 100 and under
Solves real-world whole number addition problems with sums to 20 (result unknown)	Adds money with regrouping     Identifies the value of a collection of asign and bills to \$10.00 by	Solves problems using the inverse relationship between addition and subtraction
Solves real-world whole number addition problems with sums to 20	Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money)	Instantly recalls basic multiplication facts where one factor is 6-12 and
(start unknown)	Finds equivalent combinations of coins with the same value	the other factor is 0-12
		• Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping

#### **Explanatory Notes**



**Mathematics** 

Goal: The Real and Complex Number Systems

RIT Score Range: 181 - 190

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
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Solves real-world whole number addition problems with sums to 100</li> </ul>	Combines a collection of coins and identifies the correct notation	Multiplies a 2-digit number by a 1-digit number with regrouping
(result unknown)	Makes change to \$1.00 by "counting on" or subtracting	Multiplies a 3- or 4-digit number by a 1-digit number
Subtracts a 1-digit number from a 2-digit number that is less than 20     (a) to be a great and a	Computes with dollars and cents up to and including \$5.00 and	Multiplies a 2-digit number by a 2-digit number with no regrouping
(whole numbers only)	converts to decimals (addition/subtraction only)	Performs mental computation with multiplication
<ul> <li>Subtracts a 1-digit number from a 2-digit number with no regrouping, vertically</li> </ul>	Computes 1 operation on addition or subtraction real-world problems involving money up to \$5.00	Solves word problems involving basic whole number multiplication facts to 10 x 10
	Identifies the correct time, given the words, and vice versa	Solves word problems involving whole number multiplication with
	Determines elapsed clock time	numbers greater than 10 x 10
	Determines elapsed time under 1 hour or to the hour	Uses manipulatives to divide a small set of objects into groups of equa
	Determines elapsed time involving whole hours, whole days, whole	size
	years	Models whole number multiplication and division algorithms (e.g.,
	Tells time to the nearest 5 minutes	shows multiplication as repeated addition and division as repeated subtraction)
	Determines the operation needed from a simple problem	Instantly recalls division facts with dividend and divisors less than 10
	Identifies the number that is "1 less than" a given number	Instantly recalls division facts with dividend and divisors less than 13
	Distinguishes between odd and even numbers	Divides a 2-digit number by a 1-digit number with no remainder
	Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only)	Solves word problems with whole number division facts with dividend and divisors less than 11
	Instantly recalls basic addition facts with sums to 18 in a table	Solves simple word problems involving whole number division with
	Adds two or three 2-digit number with regrouping	remainder (e.g., 1-step, 1-digit divisor)
	Adds 3-digit numbers, with regrouping, with sums under 1000	Uses models to add and subtract fractions and connect the actions to
	Performs mental computation with 2, 3, or 4 addends	algorithms
	Adds two 3- and/or 4-digit numbers, with regrouping, with sums over	Subtracts fractions with like denominators without reducing
	1000     Adds multiple-digit numbers, with regrouping, with sums over 1000	<ul> <li>Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators</li> </ul>
	Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given	<ul> <li>Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction</li> </ul>
	Solves real-world whole number addition problems with sums to 100	Adds decimals to the hundredths place (same number of digits)
	(result unknown)	Adds decimals to the hundredths place in vertical format (not same
	Uses models to calculate differences through 100 (whole numbers)	number of digits)
	• Instantly recalls basic subtraction facts with minuend less than 10	<ul> <li>Adds decimals to the thousandths place vertically with and without regrouping</li> </ul>
	Subtracts a 2-digit number from a 2-digit number, with regrouping	<ul> <li>Identifies the value of a collection of coins to \$1.00 (without picture of</li> </ul>
	Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)	coins)
	Subtracts 2- and/or 3-digit numbers with no regrouping	Adds money with regrouping  Adds to the state of a sale stick of a size and bills to \$40.00 by
	Subtracts 3- or 4-digit numbers with regrouping	Identifies the value of a collection of coins and bills to \$10.00 by     "counting on" (without picture of money)
	Subtracts multiple-digit numbers with no regrouping	Finds equivalent combinations of coins with the same value
	Solves real-world whole number problems involving subtraction with numbers under 20	Subtracts decimals to the hundredths place (same number of digits) with regrouping
	Solves real-world whole number problems involving subtraction with numbers 100 and under	Subtracts decimals to the thousandths place, vertically, with and without regrouping



Mathematics RIT Score Range: 181 - 190

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
		Makes change to \$1.00 by "counting on" or subtracting
		Solves real-world problems involving decimals (not money) using addition and subtraction
		Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only)
		Computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only)
		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)
		Computes basic operations with units of weight/mass
		Identifies the correct time, given the words, and vice versa
		Determines elapsed clock time
		Tells time to the nearest quarter hour
		Tells time to the nearest 1 minute
		Solves simple problems involving elapsed time, with the conversion of hours
		Determines the operation needed from a simple problem
		Solves problems using tables
		Distinguishes between odd and even numbers
		Identifies numbers as composite
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Represents 1/2 with a diagram or model	Counts objects that are grouped into tens and ones	Explains different interpretations of fractions (e.g., parts of a whole,
• Identifies the place value and value of each digit in whole numbers	Compares and orders decimals to the hundredths place (same number)	parts of a set, and division of whole numbers by whole numbers)
through the tens place	of digits after decimal)	Identifies equivalent fractions using visual representations
Compares whole numbers through 999	• Identifies the numeral and written name for whole numbers 101 to 999	Matches numeric and visual representation of equivalent fractions
<ul> <li>Counts objects that are grouped into tens and ones</li> </ul>	(e.g., 342 is three hundred forty-two, and vice versa)	Determines and names locations in the first quadrant on a labeled grid
Represents 1/4 with a diagram or model	• Identifies the numeral and written name for whole numbers to 1000 to 9999 (e.g., 3456 is three thousand, four hundred fifty-six, and vice versa)	or coordinate system (e.g., map or graph)
• Identifies whole numbers 100 - 999 using base-10 blocks	Identifies the numeral and written name for whole numbers 10,000 to	Identifies whole numbers over 999 using base-10 blocks
• Identifies the numerical and written name for whole numbers 21 to 100 (e.g., 62 is sixty-two, and vice versa)	100,000  • Compares whole numbers through 999	Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place
Identifies one-half from a region or set	Compares whole numbers through 9999     Compares whole numbers through 9999	Identifies the numeral and written name for whole numbers 10,000 to     100.000
• Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa)	Rounds 2- and 3- digit whole numbers to the nearest ten	Identifies the numeral and written name for whole numbers over
• Identifies missing numbers in a series through 100	Rounds 3-digit whole numbers to the nearest hundred	100,000
Counts by 2's to 100	• Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)	• Compares whole numbers to 100, using the symbols for 'less than', 'equal to', or 'greater than' (<, =, >)
• Counts backwards from a given number (given number greater than 10)	Identifies the place value and value of each digit in whole numbers	Compares whole numbers through the thousands using the symbols -
<ul> <li>Recognizes and generates equivalent forms for the same number</li> </ul>	through the tens place	>, or =

#### Explanatory Notes



Mathematics RIT Score Range: 181 - 190

Goal: The Real and Complex Number Systems

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
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Compares sets of objects and identifies which is equal to, more than, or less than the other (1 to 10 objects)	Identifies the place value and value of each digit in whole numbers through the hundreds place Identifies the place value and value of each digit in whole numbers through the thousands Identifies the place value and value of each digit in whole numbers through the hundred thousands Represents 3/4 with a diagram or model Identifies equal parts by using models Identifies 1/2 from a region or set Identifies one-half from a region or set Identifies 2/4, 3/4, or 4/4 from a region or set Identifies 2/3 or 3/3 from a region or set Identifies tenths from a region or set Identifies tenths from a region or set Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set	<ul> <li>Rounds 3-digit whole numbers to the nearest hundred</li> <li>Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)</li> <li>Identifies the place value and value of each digit in whole numbers through the thousands</li> <li>Identifies the place value and value of each digit in whole numbers through the hundred thousands</li> <li>Writes whole numbers in standard and expanded form through the hundreds</li> <li>Writes whole numbers in standard and expanded form through the thousands</li> <li>Represents 1/3 with a diagram or model</li> <li>Represents fractions with denominators other than 2, 3, 4 with a diagram or model</li> <li>Identifies 1/4 from a region or set</li> <li>Identifies 2/3 or 3/3 from a region or set</li> <li>Identifies tenths from a region or set</li> <li>Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set</li> </ul>
New Vocabulary: fact family, fourth, hundred, morning, thirds, thousand	New Vocabulary: changed, clock, closest, digit, fourths, gave, half past,	New Vocabulary: billion, composite number, decade, deposit, each, grid,
New Signs and Symbols: ( ) order of operations, a.m., ¢ cent sign, \$ dollar sign, p.m.,   tally mark	how much time, hundreds, left, left over, million, nearest, noon, o'clock, one, pennies, quarter past, quarter to, row, ten thousand, unifix cubes, what time	hundred million, miles per hour, prime number, quintillion, standard numeral, trillion
	New Signs and Symbols: { } set notation, ÷ division, long division symbol, : used with time, : used with time	New Signs and Symbols: ( ) ordered pair, °F degrees Fahrenheit, g gram, > greater than, lb pound, < less than, min minute, mph miles per hour, % percent, • point, R remainder

#### **Explanatory Notes**



Mathematics RIT Score Range:

Goal: The Real and Complex Number Systems

Skills and concepts to Enhance (73% Probability*)	Skills and Concepts to Develop (50% Probability*)	Skills and Concepts to Introduce (27% Probability*)
181 - 190 Ratios and Proportional Relationships	191 - 200 Ratios and Proportional Relationships	201 - 210  Ratios and Proportional Relationships
Completes arithmetic growth patterns in number tables by identifying	Solves simple problems involving miles/kilometers per hour	Determines unit price
the missing elements	Converts between cups, pints, and quarts	Identifies the percent represented in a 2-D region
<ul> <li>Computes simple conversions among units of time (days, weeks)</li> </ul>	Solves problems involving basic percent concepts (e.g., 10%, 50%,	Converts between inches and feet
	100%)	Solves simple problems involving measurement of length
	Computes simple conversions among units of time (minutes, hours)     Converts between cups and pints	Estimates simple conversions involving length between the customary and metric system
	Writes the missing number in a proportion using basic facts	Converts between cups and pints
	Tritos and findding framed and proportion doing basic tasts	Converts between cups, pints, and quarts
		Computes simple conversions among units of time (hours, days)
		Computes more difficult conversions among units of time
		Applies dimensional analysis to simple real-world problems (time)
		Solves simple problems involving miles per gallon
		Solves simple problems involving miles/kilometers per hour
		Writes the missing number in a proportion using basic facts
Perform Operations	Perform Operations	Perform Operations
Performs mental subtraction with numbers under 1000	Determines elapsed time involving whole hours, whole days, whole years	Multiplies a fraction by a fraction without reducing to simplest form (simple problem)
<ul> <li>Solves problems using the inverse relationship between addition and subtraction</li> </ul>	Multiplies a decimal by whole number	Divides a 3-digit number by a 1-digit number with no remainder
Uses counting by multiples for multiplication	Uses rounding to estimate answers to real-world problems involving	Divides a 4-digit number by a 1-digit number with no remainder
• Instantly recalls basic multiplication facts where one factor is 6-12 and	numbers less than 1000 with addition and subtraction (whole numbers	Divides a 3-digit number by a multiple of 10
the other factor is 0-12	only)  • Uses rounding to estimate answers to addition and subtraction	Divides a 4-digit number by a 2-digit number
Multiplies basic facts to 10 x 10 vertically	problems (whole numbers only)	Solves word problems with whole number division facts with dividend
Multiplies a 2-digit number by a 1-digit number with regrouping	Adds two 3- and/or 4-digit numbers, with regrouping, with sums over	and divisors less than 11
<ul> <li>Multiplies a 2-digit number by a 2-digit number with no regrouping</li> <li>Solves word problems involving basic whole number multiplication</li> </ul>	1000	<ul> <li>Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)</li> </ul>
facts to 10 x 10	Adds multiple-digit numbers, with regrouping, with sums over 1000     Adds multiple-digit numbers with sums under 1000	Performs mental computation with division
• Uses manipulatives to divide a small set of objects into groups of equal	Solves real-world whole number addition problems with sums to 20	Solves whole number word problems with division over 10 x 10
size	(result unknown) - with extraneous information given	Determines the remainder in a real-world problem (whole numbers)
Uses sharing for division	Solves real-world whole number addition problems with sums to 20	Uses division for multiple-step real-world problems (whole numbers)
Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated	(change unknown)  • Solves whole number addition word problems with sums over 1000	Solves real-world problems involving 2-step multiple operations, whole numbers only
subtraction)	Subtracts 1-digit number from a 2-digit number with regrouping	Adds fractions with like denominators without reducing
<ul> <li>Models multiplication and division algorithms using arrays (whole numbers)</li> </ul>	Subtracts a 2-digit number from a 2-digit number, with regrouping	Adds whole numbers and fractions
• Instantly recalls division facts with dividend and divisors less than 10	Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)	Uses models to add and subtract fractions and connect the actions to algorithms
<ul> <li>Solves real-world whole number problems involving addition and subtraction</li> </ul>	Subtracts a 2-digit number from a 3-digit number with a single	Subtracts fractions with like denominators without reducing
Recognizes addition and subtraction fact families through 18	regrouping	Subtracts mixed fractions with like denominators with no regrouping
Demonstrates an understanding of the inverse relationship between multiplication and division	Subtracts 3- or 4-digit numbers with regrouping     Performs mental subtraction with numbers under 1000	Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators

#### **Explanatory Notes**

\* Åt 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.

191 - 200



Mathematics RIT Score Range: 191 - 200

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Adds decimals to the hundredths place (same number of digits)</li> <li>Identifies the value of a collection of coins to \$1.00 (without picture of</li> </ul>	Subtracts multiple-digit numbers with no regrouping     Solves real-world whole number problems involving subtraction with	Adds decimals to the thousandths place horizontally with and without regrouping
coins)  • Adds money with regrouping	numbers 100 and under  • Solves problems using the inverse relationship between addition and	Subtracts decimals to the hundredths place (same number of digits) with regrouping
Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money)	subtraction  Instantly recalls basic multiplication facts where one factor is 6-12 and	Subtracts decimals to the thousandths place, vertically, with and without regrouping
Finds equivalent combinations of coins with the same value	the other factor is 0-12	Subtracts decimals through the hundred-thousandths place, vertically
Combines a collection of coins and identifies the correct notation	Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping	Computes the value of multiple bills and coins (addition/subtraction
Makes change to \$1.00 by "counting on" or subtracting	Multiplies a 2-digit number by a 1-digit number with regrouping	only)
Computes with dollars and cents up to and including \$5.00 and	Multiplies a 3- or 4-digit number by a 1-digit number	Multiplies a decimal by whole number
converts to decimals (addition/subtraction only)	Multiplies a 2-digit number by a 2-digit number with no regrouping	Divides decimal by a whole number
<ul> <li>Computes 1 operation on addition or subtraction real-world problems involving money up to \$5.00</li> </ul>	Performs mental computation with multiplication     Solves word problems involving basic whole number multiplication	Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division)
• Identifies the correct time, given the words, and vice versa	facts to 10 x 10	Computes addition and subtraction on multiple-step real-world problems involving money
<ul> <li>Determines elapsed clock time</li> <li>Determines elapsed time under 1 hour or to the hour</li> </ul>	Solves word problems involving whole number multiplication with numbers greater than 10 x 10	Computes money problems with multiple operations (addition/ subtraction only)
Determines elapsed time involving whole hours, whole days, whole years	Uses manipulatives to divide a small set of objects into groups of equal size	Computes addition, subtraction, multiplication, and division on multiple- step, real-world problems involving money
Tells time to the nearest 5 minutes	Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated	Solves real-world problems involving addition and subtraction of
<ul> <li>Determines the operation needed from a simple problem</li> </ul>	subtraction)	integers
<ul> <li>Identifies the number that is "1 less than" a given number</li> </ul>	Instantly recalls division facts with dividend and divisors less than 10	Solves problems involving measurement of time
<ul> <li>Distinguishes between odd and even numbers</li> </ul>	Instantly recalls division facts with dividend and divisors less than 13	• Solves simple problems involving elapsed time, with the conversion of
<ul> <li>Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only)</li> </ul>	Divides a 2-digit number by a 1-digit number with no remainder	hours • Solves problems using tables
<ul> <li>Instantly recalls basic addition facts with sums to 18 in a table</li> </ul>	Solves word problems with whole number division facts with dividend and divisors less than 11	Writes a terminating decimal as a fraction or mixed number
Adds two or three 2-digit number with regrouping	Solves simple word problems involving whole number division with	Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)
Adds 3-digit numbers, with regrouping, with sums under 1000	remainder (e.g., 1-step, 1-digit divisor)	Uses rounding to estimate answers to real-world problems involving
<ul> <li>Performs mental computation with 2, 3, or 4 addends</li> <li>Adds two 3- and/or 4-digit numbers, with regrouping, with sums over</li> </ul>	Uses models to add and subtract fractions and connect the actions to algorithms	numbers 1000 or greater with addition and subtraction (whole numbers only)
1000	Subtracts fractions with like denominators without reducing	Uses rounding to estimate answers to addition and subtraction
<ul> <li>Adds multiple-digit numbers, with regrouping, with sums over 1000</li> </ul>	<ul> <li>Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators</li> </ul>	problems (whole numbers only)
<ul> <li>Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given</li> </ul>	Solves real-world 1-step problems involving multiplication or division of	Adds multiple-digit numbers, with regrouping, with sums over 1000     Adds multiple-digit numbers with sums under 1000
<ul> <li>Solves real-world whole number addition problems with sums to 100</li> </ul>	a whole number by a fraction	Performs mental computation with more than 4 addends
(result unknown)	Adds decimals to the hundredths place (same number of digits)	Subtracts 3- or 4-digit numbers with regrouping
<ul> <li>Uses models to calculate differences through 100 (whole numbers)</li> </ul>	Adds decimals to the hundredths place in vertical format (not same number of digits)	Subtracts 1- or 4-digit numbers with regrouping     Subtracts numbers with 5 digits or more with regrouping
<ul> <li>Instantly recalls basic subtraction facts with minuend less than 10</li> </ul>	Adds decimals to the thousandths place vertically with and without	Solves real-world whole number problems involving subtraction with
Subtracts a 2-digit number from a 2-digit number, with regrouping     Uses strategies for sums and differences with 2 digit numbers (a.g.,	regrouping	numbers 100 and under (analysis)
<ul> <li>Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)</li> </ul>	Identifies the value of a collection of coins to \$1.00 (without picture of coins)	Solves problems using the inverse relationship between addition and subtraction

#### **Explanatory Notes**



**Mathematics** 

Goal: The Real and Complex Number Systems

191 - 200 RIT Score Range:

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
Perform Operations	Perform Operations	Perform Operations
Subtracts 2- and/or 3-digit numbers with no regrouping	Adds money with regrouping	Instantly recalls basic multiplication and division facts in a table
Subtracts 3- or 4-digit numbers with regrouping	Identifies the value of a collection of coins and bills to \$10.00 by	Multiplies a 2-digit number by a 1-digit number with regrouping
Subtracts multiple-digit numbers with no regrouping	"counting on" (without picture of money)	Multiplies a 3- or 4-digit number by a 1-digit number
Solves real-world whole number problems involving subtraction with	Finds equivalent combinations of coins with the same value	Multiplies multiple 1-digit numbers
numbers under 20 • Solves real-world whole number problems involving subtraction with	Subtracts decimals to the hundredths place (same number of digits) with regrouping	Multiplies a 2-digit number by a 2-digit number with regrouping
numbers 100 and under	Subtracts decimals to the thousandths place, vertically, with and without regrouping	Multiplies a 3-digit number by a 2-digit number with regrouping     Performs mental computation with multiplication
	Makes change to \$1.00 by "counting on" or subtracting	Multiplies a 2- or 3-digit number by multiples of 10 or 100
	Solves real-world problems involving decimals (not money) using addition and subtraction	Multiplies a 3-digit number by a 3-digit number     Solves word problems involving whole number multiplication with
	Computes with dollars and cents up to and including \$5.00 and	numbers greater than 10 x 10
	converts to decimals (addition/subtraction only)  • Computes 1 operation on real-world problems involving money over	Models whole number multiplication and division algorithms (e.g., use physical materials to show 4 groups of 3 objects)
	\$5.00 (addition/subtraction only)	• Instantly recalls division facts with dividend and divisors less than 13
	Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division)	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
	Computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division)	remainder
	Computes basic operations with units of weight/mass	
	Identifies the correct time, given the words, and vice versa	
	Determines elapsed clock time	
	Tells time to the nearest quarter hour	
	Tells time to the nearest 1 minute	
	Solves simple problems involving elapsed time, with the conversion of hours	
	Determines the operation needed from a simple problem	
	Solves problems using tables	
	Distinguishes between odd and even numbers	
	Identifies numbers as composite	
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Counts objects that are grouped into tens and ones	Explains different interpretations of fractions (e.g., parts of a whole,	Identifies the numeral and written name for whole numbers over
Compares and orders decimals to the hundredths place (same number)	parts of a set, and division of whole numbers by whole numbers)	100,000
of digits after decimal)	Identifies equivalent fractions using visual representations	Compares whole numbers through the billions using the symbols <, >
• Identifies the numeral and written name for whole numbers 101 to 999	Matches numeric and visual representation of equivalent fractions	or =
(e.g., 342 is three hundred forty-two, and vice versa)	Determines and names locations in the first quadrant on a labeled grid	Orders whole numbers a million or greater using < or > symbols     Depends 4.5. and 6. digitally halo greater to the property to a
• Identifies the numeral and written name for whole numbers to 1000 to 9999 (e.g., 3456 is three thousand, four hundred fifty-six, and vice versa)	or coordinate system (e.g., map or graph)	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten
Identifies the numeral and written name for whole numbers 10,000 to     100.000	<ul> <li>Identifies whole numbers over 999 using base-10 blocks</li> <li>Identifies the numeral and written name for whole numbers with a zero</li> </ul>	<ul> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> </ul>
Compares whole numbers through 999	between digits to the ten thousands place	Rounds whole numbers to the nearest hundred thousand
Sampaisa midia mambala amaagii 000	l	I



Mathematics RIT Score Range: 191 - 200

Goal: The Real and Complex Number Systems

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
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
<ul> <li>Compares whole numbers through 9999</li> </ul>	Identifies the numeral and written name for whole numbers 10,000 to	<ul> <li>Rounds wholes numbers to the nearest billion</li> </ul>
<ul> <li>Rounds 2- and 3- digit whole numbers to the nearest ten</li> </ul>	100,000	Compares integers on a number line
<ul> <li>Rounds 3-digit whole numbers to the nearest hundred</li> </ul>	Identifies the numeral and written name for whole numbers over     100.000	Explains the rules for rounding
<ul> <li>Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)</li> </ul>	Compares whole numbers to 100, using the symbols for 'less than',	• Writes equivalent forms of whole numbers using place value (e.g., 54 = 4 tens and 14 ones)
<ul> <li>Identifies the place value and value of each digit in whole numbers through the tens place</li> </ul>	'equal to', or 'greater than' (<, =, >)  • Compares whole numbers through the thousands using the symbols <,	<ul> <li>Identifies the place value and value of each digit in whole numbers through the billions</li> </ul>
<ul> <li>Identifies the place value and value of each digit in whole numbers through the hundreds place</li> </ul>	>, or = • Rounds 2- and 3- digit whole numbers to the nearest ten	<ul> <li>Writes whole numbers in standard and expanded form through the hundred thousands</li> </ul>
Identifies the place value and value of each digit in whole numbers through the thousands	Rounds 3-digit whole numbers to the nearest hundred     Identifies whole numbers under 100 given place value terms (e.g., 3)	Applies base ten place value concepts with whole numbers to solve problems
Identifies the place value and value of each digit in whole numbers	tens and 4 ones = 34)	Writes whole numbers using place value terms and vice versa
through the hundred thousands	Identifies the place value and value of each digit in whole numbers	Identifies halves of a region using nonadjacent parts
<ul> <li>Represents 3/4 with a diagram or model</li> </ul>	through the thousands	Identifies equivalent fractions using visual representations
<ul> <li>Identifies equal parts by using models</li> </ul>	Identifies the place value and value of each digit in whole numbers through the hundred thousands	• Expresses "1" in many different ways (e.g., 3/3, 4/4)
<ul> <li>Identifies 1/2 from a region or set</li> <li>Identifies one-half from a region or set</li> </ul>	Writes whole numbers in standard and expanded form through the	Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters)
• Identifies 1/4 from a region or set	hundreds  • Writes whole numbers in standard and expanded form through the	Writes mixed numbers as improper fractions and improper fractions as
<ul> <li>Identifies 2/4, 3/4, or 4/4 from a region or set</li> </ul>	thousands	mixed numbers
<ul> <li>Identifies 2/3 or 3/3 from a region or set</li> <li>Identifies tenths from a region or set</li> </ul>	Represents 1/3 with a diagram or model     Represents fractions with denominators other than 2, 3, 4 with a	<ul> <li>Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10)</li> </ul>
Identifies eighths from a region or set	diagram or model	<ul> <li>Identifies whole numbers over 999 using base-10 blocks</li> </ul>
• Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a	Identifies 1/4 from a region or set	<ul> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> </ul>
region or set	• Identifies 1/3 from a region or set	Orders fractions on a number line
	Identifies 2/3 or 3/3 from a region or set     Identifies tenths from a region or set	<ul> <li>Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)</li> </ul>
	• Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a	• Identifies a decimal on a number line to the tenths place
	region or set	Rounds decimals to the nearest whole number
		Graphs ordered pairs in the first quadrant
		Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)
		Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system
		Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks)
		Locates the origin on a coordinate grid

#### **Explanatory Notes**



Mathematics RIT Score Range: 191 - 200

Goal: The Real and Complex Number Systems

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
New Vocabulary: changed, clock, closest, digit, fourths, gave, half past, how much time, hundreds, left, left over, million, nearest, noon, o'clock,	New Vocabulary: billion, composite number, decade, deposit, each, grid, hundred million, miles per hour, prime number, quintillion, standard	New Vocabulary: biggest, coordinate, coordinate point, expanded numeral, larger, miles per gallon, origin
one, pennies, quarter past, quarter to, row, ten thousand, unifix cubes, what time	numeral, trillion  New Signs and Symbols: ( ) ordered pair, °F degrees Fahrenheit, g gram,	New Signs and Symbols: ft feet, in. inch, mpg miles per gallon, - negative number
New Signs and Symbols: { } set notation, ÷ division, long division symbol, : used with time, : used with time	> greater than, lb pound, < less than, min minute, mph miles per hour, % percent, • point, R remainder	

#### **Explanatory Notes**



Mathematics RIT Score Range: 201 - 210

Goal: The Real and Complex Number Systems

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
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
Solves simple problems involving miles/kilometers per hour	Determines unit price	Solves problems involving equivalent fractions
<ul> <li>Converts between cups, pints, and quarts</li> </ul>	Identifies the percent represented in a 2-D region	Solves 1-step problems involving proportions
• Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%)	Converts between inches and feet     Solves simple problems involving measurement of length	• Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%)
Computes simple conversions among units of time (minutes, hours)     Converts between cups and pints	Estimates simple conversions involving length between the customary and metric system	Converts between inches and feet     Converts between inches, feet, and yards
Writes the missing number in a proportion using basic facts	Converts between cups and pints	Solves simple problems involving measurement of length
	Converts between cups, pints, and quarts	Converts between cups, pints, quarts, and gallons
	Computes simple conversions among units of time (hours, days)	Apply dimensional analysis to simple real-world problems (capacity)
	Computes more difficult conversions among units of time	Computes more difficult conversions among units of time
	Applies dimensional analysis to simple real-world problems (time)	Applies dimensional analysis to simple real-world problems (time)
	Solves simple problems involving miles per gallon	Solves simple problems involving miles per gallon
	Solves simple problems involving miles/kilometers per hour	Determines unit price
	Writes the missing number in a proportion using basic facts	Solves problems involving rates
		Writes a basic percent as a fraction and vice versa (e.g., 10%, 25%, 50%, 100%)
		Expresses a percent as a fraction with 100 as the denominator and vice versa
		Recognizes and writes proportions
		Identifies the percent represented in a 2-D region
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Determines elapsed time involving whole hours, whole days, whole years</li> </ul>	Multiplies a fraction by a fraction without reducing to simplest form (simple problem)	Subtracts mixed fractions with like denominators with no regrouping     Uses rounding to estimate answers to real-world problems involving
<ul> <li>Multiplies a decimal by whole number</li> <li>Uses rounding to estimate answers to real-world problems involving</li> </ul>	<ul> <li>Divides a 3-digit number by a 1-digit number with no remainder</li> <li>Divides a 4-digit number by a 1-digit number with no remainder</li> </ul>	multiplication and division of numbers less than 100 (whole numbers only)
numbers less than 1000 with addition and subtraction (whole numbers	Divides a 4-digit number by a 1-digit number with no remainder     Divides a 3-digit number by a multiple of 10	Uses rounding to estimate answers to real-world problems involving
only)  • Uses rounding to estimate answers to addition and subtraction	Divides a 3-digit number by a multiple of 10     Divides a 4-digit number by a 2-digit number	numbers less than 1000 with multiplication and division (whole numbers only)
problems (whole numbers only)	<ul> <li>Solves word problems with whole number division facts with dividend and divisors less than 11</li> </ul>	Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole
<ul> <li>Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000</li> </ul>	Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)	numbers only)  • Uses rounding to estimate answers to difficult multiplication and
<ul> <li>Adds multiple-digit numbers, with regrouping, with sums over 1000</li> </ul>	Performs mental computation with division	division problems (whole numbers only)
<ul> <li>Adds multiple-digit numbers with sums under 1000</li> </ul>	Solves whole number word problems with division over 10 x 10	Subtracts numbers with 5 digits or more with regrouping
<ul> <li>Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given</li> </ul>	Determines the remainder in a real-world problem (whole numbers)	Instantly recalls basic multiplication and division facts in a table
Solves real-world whole number addition problems with sums to 20	Uses division for multiple-step real-world problems (whole numbers)	Multiplies a 2-digit number by a 2-digit number with regrouping
(change unknown)	Solves real-world problems involving 2-step multiple operations, whole	Multiplies a 3-digit number by a 2-digit number with regrouping
Solves whole number addition word problems with sums over 1000	numbers only	Performs mental computation with multiplication
<ul> <li>Subtracts 1-digit number from a 2-digit number with regrouping</li> <li>Subtracts a 2-digit number from a 2-digit number, with regrouping</li> </ul>	<ul><li>Adds fractions with like denominators without reducing</li><li>Adds whole numbers and fractions</li></ul>	Uses multiplication strategies to explain computation (e.g., doubles, 9-patterns, decomposing, partial products)
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#### **Explanatory Notes**



Mathematics RIT Score Range: 201 - 210

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)	Uses models to add and subtract fractions and connect the actions to algorithms	Multiplies a 3-digit number by a 3-digit number     Multiplies a 4- or more digit number by multiplies of 100 or 1000
Subtracts a 2-digit number from a 3-digit number with a single	Subtracts fractions with like denominators without reducing	Multiplies a 4-0 finite digit number by multiples of 100 of 1000     Multiplies multiple-digit numbers
regrouping	Subtracts mixed fractions with like denominators with no regrouping	Models whole number multiplication and division algorithms (e.g., uses)
<ul> <li>Subtracts 3- or 4-digit numbers with regrouping</li> </ul>	Solves real-world 1-step problems involving addition and subtraction of	physical materials to show 4 groups of 3 objects)
<ul> <li>Performs mental subtraction with numbers under 1000</li> </ul>	fractions with like denominators	Divides a 2-digit number or a 3-digit number by a 1-digit number with a
<ul> <li>Subtracts multiple-digit numbers with no regrouping</li> </ul>	Adds decimals to the thousandths place horizontally with and without	remainder
Solves real-world whole number problems involving subtraction with	regrouping	Performs mental computation with division
numbers 100 and under	Subtracts decimals to the hundredths place (same number of digits) with regrouping	Divides a 4-digit number by a 1-digit number with no remainder
<ul> <li>Solves problems using the inverse relationship between addition and subtraction</li> </ul>	Subtracts decimals to the thousandths place, vertically, with and	Divides a 3-digit number by a 2-digit number
Instantly recalls basic multiplication facts where one factor is 6-12 and	without regrouping	Divides a 4-digit number by a 2-digit number
the other factor is 0-12	Subtracts decimals through the hundred-thousandths place, vertically	Divides multiple-digit numbers
• Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping	Computes the value of multiple bills and coins (addition/subtraction	Solves whole number word problems with division over 10 x 10
<ul> <li>Multiplies a 2-digit number by a 1-digit number with regrouping</li> </ul>	only)	<ul> <li>Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor)</li> </ul>
<ul> <li>Multiplies a 3- or 4-digit number by a 1-digit number</li> </ul>	Multiplies a decimal by whole number	Solves real-world problems involving 2-step multiple operations, whole
<ul> <li>Multiplies a 2-digit number by a 2-digit number with no regrouping</li> </ul>	Divides decimal by a whole number	numbers only
Performs mental computation with multiplication	Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division)	Solves real-world multiple-step problems involving whole numbers
<ul> <li>Solves word problems involving basic whole number multiplication facts to 10 x 10</li> </ul>	Computes addition and subtraction on multiple-step real-world problems involving money	Demonstrates an understanding of the inverse relationship between addition and subtraction
<ul> <li>Solves word problems involving whole number multiplication with numbers greater than 10 x 10</li> </ul>	Computes money problems with multiple operations (addition/	Adds fractions with like denominators without reducing
Uses manipulatives to divide a small set of objects into groups of equal	subtraction only)	Adds fractions with like denominators with reducing or converting to a
size	Computes addition, subtraction, multiplication, and division on multiple- step, real-world problems involving money	mixed fraction
<ul> <li>Models whole number multiplication and division algorithms (e.g.,</li> </ul>	Solves real-world problems involving addition and subtraction of	Adds simple mixed fractions with unlike denominators without reducing  Adds simple mixed fractions with unlike denominators (a.g., believe)
shows multiplication as repeated addition and division as repeated subtraction)	integers	Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)
<ul> <li>Instantly recalls division facts with dividend and divisors less than 10</li> </ul>	Solves problems involving measurement of time	Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths)
<ul> <li>Instantly recalls division facts with dividend and divisors less than 13</li> </ul>	Solves simple problems involving elapsed time, with the conversion of hours	Subtracts fractions with unlike denominators without reducing
<ul> <li>Divides a 2-digit number by a 1-digit number with no remainder</li> </ul>	Solves problems using tables	Subtracts mixed fractions with unlike denominators with no regrouping
Solves word problems with whole number division facts with dividend and divisors less than 11.	Writes a terminating decimal as a fraction or mixed number	Solves real-world problems involving addition and subtraction of
<ul><li>and divisors less than 11</li><li>Solves simple word problems involving whole number division with</li></ul>	Expresses the equivalent form of a fraction, decimal, and/or percent	fractions where converting one denominator is necessary
remainder (e.g., 1-step, 1-digit divisor)	(simple fraction)  • Uses rounding to estimate answers to real-world problems involving	Uses models to multiply and divide fractions and connect the actions to algorithms
<ul> <li>Uses models to add and subtract fractions and connect the actions to algorithms</li> </ul>	numbers 1000 or greater with addition and subtraction (whole numbers only)	Multiplies a fraction by a fraction where reducing to simplest form is necessary
<ul> <li>Subtracts fractions with like denominators without reducing</li> </ul>	Uses rounding to estimate answers to addition and subtraction	Multiplies a fraction by a whole number
<ul> <li>Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators</li> </ul>	problems (whole numbers only)	Solves 1-step real-world problems involving fractions with
Solves real-world 1-step problems involving multiplication or division of	Adds multiple-digit numbers, with regrouping, with sums over 1000	multiplication and division
a whole number by a fraction	Adds multiple-digit numbers with sums under 1000	Adds decimals to the hundredths place in horizontal format (not same
	Performs mental computation with more than 4 addends	number of digits)

#### **Explanatory Notes**



Mathematics RIT Score Range: 201 - 210

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
		(simple fraction)

#### **Explanatory Notes**



Mathematics RIT Score Range: 201 - 210

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
		Determines factors of whole numbers
		Identifies numbers as prime
		Identifies common factors of two or more numbers
		Identifies the greatest common factor of whole numbers
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
• Explains different interpretations of fractions (e.g., parts of a whole,	Identifies the numeral and written name for whole numbers over	Converts fractions to lowest terms
parts of a set, and division of whole numbers by whole numbers)	100,000	Predicts the relative size of the answer when computing with 10's,
<ul> <li>Identifies equivalent fractions using visual representations</li> </ul>	• Compares whole numbers through the billions using the symbols <, >,	100's, 1000's
<ul> <li>Matches numeric and visual representation of equivalent fractions</li> </ul>		Predicts the relative size of the answer when multiplying whole
Determines and names locations in the first quadrant on a labeled grid	Orders whole numbers a million or greater using < or > symbols	numbers
or coordinate system (e.g., map or graph)	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten	Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system
Identifies whole numbers over 999 using base-10 blocks	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred	Locates the origin on a coordinate grid
<ul> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> </ul>	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand	Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred
Identifies the numeral and written name for whole numbers 10,000 to	Rounds whole numbers to the nearest hundred thousand	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand
100,000	Rounds wholes numbers to the nearest billion	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand
<ul> <li>Identifies the numeral and written name for whole numbers over</li> </ul>	Compares integers on a number line	Rounds wholes numbers to the nearest billion
100,000	• Explains the rules for rounding	Writes whole numbers in standard and expanded form through the
<ul> <li>Compares whole numbers to 100, using the symbols for 'less than', 'equal to', or 'greater than' (&lt;, =, &gt;)</li> </ul>	• Writes equivalent forms of whole numbers using place value (e.g., 54 = 4 tens and 14 ones)	hundred thousands
<ul> <li>Compares whole numbers through the thousands using the symbols &lt;,</li> </ul>	Identifies the place value and value of each digit in whole numbers	Identifies equivalent fractions using visual representations
>, or =	through the billions	Identifies a fractions in lowest terms from a region or set
<ul> <li>Rounds 2- and 3- digit whole numbers to the nearest ten</li> </ul>	Writes whole numbers in standard and expanded form through the hundred thousands	Identifies eighths, reduced to lowest terms, from a region or set
<ul> <li>Rounds 3-digit whole numbers to the nearest hundred</li> </ul>	Applies base ten place value concepts with whole numbers to solve	Determines simple equivalent fractions using multiples
<ul> <li>Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)</li> </ul>	problems	Writes mixed numbers as improper fractions and improper fractions as mixed numbers
Identifies the place value and value of each digit in whole numbers	Writes whole numbers using place value terms and vice versa	Compares fractions on a number line
through the thousands	Identifies halves of a region using nonadjacent parts	Compares fractions greater than or less than a given fraction using
Identifies the place value and value of each digit in whole numbers	Identifies equivalent fractions using visual representations    All	visual representations
through the hundred thousands	• Expresses "1" in many different ways (e.g., 3/3, 4/4)	Compares fractions and mixed numbers
<ul> <li>Writes whole numbers in standard and expanded form through the hundreds</li> </ul>	Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters)	Compares fractions and mixed numbers using symbols
Writes whole numbers in standard and expanded form through the	Writes mixed numbers as improper fractions and improper fractions as	Orders fractions on a number line  Find him addition at intermediations of fractions (a property of a whole).
thousands	mixed numbers	Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)
<ul> <li>Represents 1/3 with a diagram or model</li> <li>Represents fractions with denominators other than 2, 3, 4 with a</li> </ul>	• Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10)	• Represents a decimal to the hundredths place (e.g., three hundredths
diagram or model	• Identifies whole numbers over 999 using base-10 blocks	= 0.03) • Compares and orders decimals past the thousandths place
• Identifies 1/4 from a region or set	Identifies the numeral and written name for whole numbers with a zero	Rounds decimals to the nearest whole number
<ul> <li>Identifies 1/3 from a region or set</li> </ul>	between digits to the ten thousands place	Rounds decimals to the nearest tenth
<ul> <li>Identifies 2/3 or 3/3 from a region or set</li> </ul>	Orders fractions on a number line	Applies base ten place value concepts to solve problems using
<ul> <li>Identifies tenths from a region or set</li> </ul>		decimals
Evnlanatory Notes	•	•

#### Explanatory Notes



Mathematics RIT Score Range: 201 - 210

Goal: The Real and Complex Number Systems

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
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
• Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set	Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)     Identifies a decimal on a number line to the tenths place	Identifies an integer from a number line     Compares two integers     Orders integers on a number line
	Rounds decimals to the nearest whole number     Graphs ordered pairs in the first quadrant	Defines "integers"
	Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)	
	Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system	
	Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks)	
	Locates the origin on a coordinate grid	
New Vocabulary: billion, composite number, decade, deposit, each, grid, hundred million, miles per hour, prime number, quintillion, standard	New Vocabulary: biggest, coordinate, coordinate point, expanded numeral, larger, miles per gallon, origin	New Vocabulary: century, coin, common factor, decimal form, greatest common factor, how long, lowest term, lowest terms, reduce, triple
numeral, trillion	New Signs and Symbols: ft feet, in. inch, mpg miles per gallon, - negative	New Signs and Symbols: \$ dollar sign, hr hour, kg kilogram, - negative
New Signs and Symbols: ( ) ordered pair, °F degrees Fahrenheit, g gram, > greater than, lb pound, < less than, min minute, mph miles per hour, % percent, • point, R remainder	number	sign, not equal to, yd yard

#### **Explanatory Notes**



Mathematics RIT Score Range: 211 - 220

Goal: The Real and Complex Number Systems

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
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
Determines unit price	Solves problems involving equivalent fractions	Solves real-world problems involving decimals (not money) using
• Identifies the percent represented in a 2-D region	Solves 1-step problems involving proportions	multiplication
Converts between inches and feet	Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%,	Solves problems involving ratios
<ul> <li>Solves simple problems involving measurement of length</li> </ul>	100%)	Solves 1-step problems involving proportions
<ul> <li>Estimates simple conversions involving length between the customary and metric system</li> </ul>	Converts between inches and feet     Converts between inches, feet, and yards	<ul> <li>Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%)</li> </ul>
Converts between cups and pints	Solves simple problems involving measurement of length	Calculates a percent of a number (e.g., 6% of 30)
Converts between cups, pints, and quarts	Converts between cups, pints, quarts, and gallons	<ul> <li>Calculates a number from a percent (e.g., 4 is 9% of what)</li> </ul>
Computes simple conversions among units of time (hours, days)	Apply dimensional analysis to simple real-world problems (capacity)	Solves problems involving percents
Computes more difficult conversions among units of time	Computes more difficult conversions among units of time	Solves problems involving tax and tips
Applies dimensional analysis to simple real-world problems (time)	Applies dimensional analysis to simple real-world problems (time)	Converts between inches, feet, and yards
Solves simple problems involving miles per gallon	Solves simple problems involving miles per gallon	Converts between millimeters, centimeters, meters, and kilometers
Solves simple problems involving miles/kilometers per hour	Determines unit price	Uses dimensional analysis for unit conversions (length)
Writes the missing number in a proportion using basic facts	Solves problems involving rates	Uses concrete and pictorial models to represent ratios
	Writes a basic percent as a fraction and vice versa (e.g., 10%, 25%, 50%, 100%)	<ul> <li>Solves problems involving length in the customary system and converts to larger or smaller units</li> </ul>
	Expresses a percent as a fraction with 100 as the denominator and	Converts between ounces and pounds
	vice versa	<ul> <li>Converts between ounces, pounds, and tons</li> </ul>
	Recognizes and writes proportions	Converts between cups, pints, quarts, and gallons
	Identifies the percent represented in a 2-D region	Converts within the metric system
		Apply dimensional analysis to simple real-world problems (capacity)
		<ul> <li>Solves problems involving capacity in the customary system and converts to larger or smaller units</li> </ul>
		Computes 2-step conversions between units of time
		Applies dimensional analysis to simple real-world problems (time)
		Writes the missing number in a proportion with numbers other than basic facts (e.g., 5/13=?/117)
		Solves complex problems involving miles per gallon
		Solves complex problems involving miles/kilometers per hour
		Solves problems involving rates
		Solves problems involving perimeter and converts to larger or smaller units
		Expresses a percent as a fraction and vice versa
		Interprets data given in circle graphs to solve complex problems (with percents)
		Writes a ratio as a percent and vice versa
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Multiplies a fraction by a fraction without reducing to simplest form (simple problem)</li> </ul>	Subtracts mixed fractions with like denominators with no regrouping	Divides a decimal by a decimal

#### **Explanatory Notes**



Mathematics RIT Score Range: 211 - 220

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
Divides a 3-digit number by a 1-digit number with no remainder	Uses rounding to estimate answers to real-world problems involving	Uses rounding to estimate answers to real-world problems involving
<ul> <li>Divides a 4-digit number by a 1-digit number with no remainder</li> </ul>	multiplication and division of numbers less than 100 (whole numbers	multiplication and division of numbers less than 100 (whole numbers only)
<ul> <li>Divides a 3-digit number by a multiple of 10</li> </ul>	only)  • Uses rounding to estimate answers to real-world problems involving	Uses rounding to estimate answers to real-world problems involving
<ul> <li>Divides a 4-digit number by a 2-digit number</li> </ul>	numbers less than 1000 with multiplication and division (whole numbers	numbers less than 1000 with multiplication and division (whole numbers
Solves word problems with whole number division facts with dividend and division less than 14.	only)	only)
<ul> <li>and divisors less than 11</li> <li>Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)</li> </ul>	Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)	<ul> <li>Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)</li> </ul>
<ul> <li>Performs mental computation with division</li> </ul>	Uses rounding to estimate answers to difficult multiplication and	Multiplies multiple-digit numbers
<ul> <li>Solves whole number word problems with division over 10 x 10</li> </ul>	division problems (whole numbers only)	Divides a 4-digit number by a 2-digit number
<ul> <li>Determines the remainder in a real-world problem (whole numbers)</li> </ul>	Subtracts numbers with 5 digits or more with regrouping	Divides multiple-digit numbers
<ul> <li>Uses division for multiple-step real-world problems (whole numbers)</li> </ul>	Instantly recalls basic multiplication and division facts in a table	Solves complex word problems involving whole number division with
Solves real-world problems involving 2-step multiple operations, whole	Multiplies a 2-digit number by a 2-digit number with regrouping	remainder (e.g., 2-step, 2-digit divisor)
numbers only	Multiplies a 3-digit number by a 2-digit number with regrouping	Solves real-world multiple-step problems involving whole numbers
Adds fractions with like denominators without reducing	Performs mental computation with multiplication     I lead multiplication strategies to explain computation (e.g., doubles, 0).	Demonstrates an understanding of multiple properties     Adda freetiess with like depositions or acquisition to a
<ul><li>Adds whole numbers and fractions</li><li>Uses models to add and subtract fractions and connect the actions to</li></ul>	<ul> <li>Uses multiplication strategies to explain computation (e.g., doubles, 9- patterns, decomposing, partial products)</li> </ul>	<ul> <li>Adds fractions with like denominators with reducing or converting to a mixed fraction</li> </ul>
algorithms	Multiplies a 3-digit number by a 3-digit number	<ul> <li>Adds fractions with unlike denominators without reducing</li> </ul>
<ul> <li>Subtracts fractions with like denominators without reducing</li> </ul>	Multiplies a 4- or more digit number by multiples of 100 or 1000	Adds fractions with unlike denominators with reducing or converting to
<ul> <li>Subtracts mixed fractions with like denominators with no regrouping</li> </ul>	Multiplies multiple-digit numbers	a mixed fraction
<ul> <li>Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators</li> </ul>	Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)	<ul> <li>Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)</li> </ul>
<ul> <li>Adds decimals to the thousandths place horizontally with and without regrouping</li> </ul>	Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder	<ul> <li>Adds mixed fractions where converting from improper fractions is necessary</li> </ul>
Subtracts decimals to the hundredths place (same number of digits)	Performs mental computation with division	Subtracts fractions with like denominators with reducing
with regrouping	Divides a 4-digit number by a 1-digit number with no remainder	Subtracts fractions with unlike denominators without reducing
Subtracts decimals to the thousandths place, vertically, with and	Divides a 3-digit number by a 2-digit number	Subtracts fractions with unlike denominators with reducing
without regrouping	Divides a 4-digit number by a 2-digit number	Subtracts mixed fractions with unlike denominators with no regrouping
Subtracts decimals through the hundred-thousandths place, vertically	Divides multiple-digit numbers	Subtracts whole numbers, fractions, and mixed fractions
<ul> <li>Computes the value of multiple bills and coins (addition/subtraction only)</li> </ul>	Solves whole number word problems with division over 10 x 10	<ul> <li>Subtracts whole numbers, fractions, and mixed fractions with regrouping</li> </ul>
<ul> <li>Multiplies a decimal by whole number</li> </ul>	Solves complex word problems involving whole number division with	Solves real-world problems involving addition and subtraction of
Divides decimal by a whole number	remainder (e.g., 2-step, 2-digit divisor)  • Solves real-world problems involving 2-step multiple operations, whole	fractions where converting one denominator is necessary
<ul> <li>Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division)</li> </ul>	numbers only	<ul> <li>Uses models to multiply and divide fractions and connect the actions to algorithms</li> </ul>
Computes addition and subtraction on multiple-step real-world problems involving money	Solves real-world multiple-step problems involving whole numbers     Demonstrates an understanding of the inverse relationship between	Multiplies a fraction by a fraction without reducing to simplest form (complex problem)
Computes money problems with multiple operations (addition/ subtraction only)	addition and subtraction  • Adds fractions with like denominators without reducing	Multiplies a fraction by a fraction where reducing to simplest form is necessary
Computes addition, subtraction, multiplication, and division on multiple-	Adds fractions with like denominators with reducing or converting to a	Multiplies a fraction by a whole number
step, real-world problems involving money	mixed fraction	Multiplies mixed fractions
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Mathematics RIT Score Range: 211 - 220

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Solves real-world problems involving addition and subtraction of</li> </ul>	Adds fractions with unlike denominators without reducing	Divides a fraction by a fraction
integers	Adds simple mixed fractions with unlike denominators (e.g., halves,	Divides a mixed fraction by a fraction
<ul> <li>Solves problems involving measurement of time</li> <li>Solves simple problems involving elapsed time, with the conversion of</li> </ul>	thirds, fourths, eighths)  • Subtracts simple fractions with unlike denominators without reducing	<ul> <li>Solves 1-step real-world problems involving fractions with multiplication and division</li> </ul>
hours	(e.g., halves, quarters, thirds, eighths)	Solves 2- or more step real-world problems involving fractions with
<ul> <li>Solves problems using tables</li> </ul>	Subtracts fractions with unlike denominators without reducing	multiplication and division
<ul> <li>Writes a terminating decimal as a fraction or mixed number</li> </ul>	Subtracts mixed fractions with unlike denominators with no regrouping	Solves problems involving fractions (e.g., multiple operations,
<ul> <li>Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)</li> </ul>	Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary	conversions)  • Adds decimals to the hundredths place in horizontal format (not same
Uses rounding to estimate answers to real-world problems involving	Uses models to multiply and divide fractions and connect the actions	number of digits)
numbers 1000 or greater with addition and subtraction (whole numbers only)	to algorithms	Adds decimals through the hundred-thousandths place
Uses rounding to estimate answers to addition and subtraction	Multiplies a fraction by a fraction where reducing to simplest form is necessary	Subtracts decimals to the hundredths place (not same number of digits)
problems (whole numbers only)	Multiplies a fraction by a whole number	<ul> <li>Subtracts decimals to the thousandths place, horizontally, with and without regrouping</li> </ul>
<ul> <li>Adds multiple-digit numbers, with regrouping, with sums over 1000</li> <li>Adds multiple-digit numbers with sums under 1000</li> </ul>	Solves 1-step real-world problems involving fractions with multiplication and division	<ul> <li>Subtracts decimals through the hundred-thousandths place, horizontally</li> </ul>
<ul> <li>Performs mental computation with more than 4 addends</li> </ul>	Adds decimals to the hundredths place in horizontal format (not same)	Subtracts a decimal from a whole number, horizontally
<ul> <li>Subtracts 3- or 4-digit numbers with regrouping</li> </ul>	number of digits)	Multiplies a decimal by a decimal, vertical form (factors to tenths or
<ul> <li>Subtracts numbers with 5 digits or more with regrouping</li> </ul>	Adds decimals to the thousandths place horizontally with and without	hundredths)
<ul> <li>Solves real-world whole number problems involving subtraction with</li> </ul>	regrouping	Multiplies a decimal by a decimal (factors to hundredths)
numbers 100 and under (analysis)	Adds decimals through the hundred-thousandths place     Subtracts decimals to the thousandths place, horizontally, with and	Multiplies a decimal by 10, 100, 1000
<ul> <li>Solves problems using the inverse relationship between addition and subtraction</li> </ul>	without regrouping	Multiplies a decimal by a decimal (factors to thousandths)
Instantly recalls basic multiplication and division facts in a table	Computes the value of multiple bills and coins (addition/subtraction)	• Divides a decimal by 10, 100, 1000
Multiplies a 2-digit number by a 1-digit number with regrouping	only)  • Analyzes and computes 1 operation on real-world problems involving	<ul> <li>Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)</li> </ul>
<ul> <li>Multiplies a 3- or 4-digit number by a 1-digit number</li> </ul>	money over \$5.00 (addition/subtraction only)	Computes the value of multiple bills and coins (multiplication/division)
Multiplies multiple 1-digit numbers	Multiplies a decimal by a decimal, vertical form (factors to tenths or	Calculate the sum of integers using a number line
<ul> <li>Multiplies a 2-digit number by a 2-digit number with regrouping</li> </ul>	hundredths)	Adds integers with unlike signs
<ul> <li>Multiplies a 3-digit number by a 2-digit number with regrouping</li> </ul>	Multiplies a decimal by a decimal (factors to hundredths)	<ul> <li>Adds several positive and negative integers</li> </ul>
<ul> <li>Performs mental computation with multiplication</li> </ul>	Divides decimal by a whole number	Uses models to add and subtract integers and connect the actions to
<ul> <li>Multiplies a 2- or 3-digit number by multiples of 10 or 100</li> </ul>	Analyzes and computes 1 operation on real-world problems involving	algorithms
<ul> <li>Multiplies a 3-digit number by a 3-digit number</li> </ul>	money over \$5.00 (multiplication/division)	Subtracts integers
<ul> <li>Solves word problems involving whole number multiplication with numbers greater than 10 x 10</li> </ul>	Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)	<ul> <li>Solves real-world problems involving addition and subtraction of integers</li> </ul>
• Models whole number multiplication and division algorithms (e.g., uses	Computes addition and subtraction on multiple-step real-world	Solves problems involving addition and subtraction of integers
physical materials to show 4 groups of 3 objects)	problems involving money	Multiplies integers with unlike signs
<ul> <li>Instantly recalls division facts with dividend and divisors less than 13</li> </ul>	Computes addition, subtraction, multiplication, and division on multiple- step, real-world problems involving money	Divides integers with unlike signs
<ul> <li>Divides a 2-digit number by a 1-digit number with no remainder</li> </ul>	Adds integers with like signs	Divides integers with like signs
<ul> <li>Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder</li> </ul>	Uses models to add and subtract integers and connect the actions to algorithms	<ul><li>Adds rational expressions in decimal form</li><li>Identifies the additive inverse property</li></ul>
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#### **Explanatory Notes**



Mathematics RIT Score Range: 211 - 220

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
	Solves real-world problems involving addition and subtraction of integers	Solves difficult problems involving elapsed time, with the conversion of hours
	Multiplies integers with unlike signs	<ul> <li>Interprets data given in tables to solve problems</li> </ul>
	Divides integers with unlike signs	Writes a simple mixed fraction as a decimal and vice versa
	Divides integers with like signs	• Writes a fraction or mixed number as a decimal when the denominator
	Demonstrates an understanding that division by 0 is undefined	is a multiple of 10
	Solves difficult problems involving elapsed time, with the conversion of hours	<ul><li>Determines factors of whole numbers</li><li>Uses multiple number theory concepts to solve problems (e.g., factors,</li></ul>
	Selects and uses the appropriate units depending on degree of accuracy required to solve problems	digits, odd/even, divisibility)  • Uses factor and multiple concepts to solve simple problems
	Expresses a simple fraction as a decimal	Identifies common factors of two or more numbers
	Writes a simple mixed fraction as a decimal and vice versa	Identifies the greatest common factor of whole numbers
	Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10	
	Expresses a percent as a decimal and vice versa	
	Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)	
	Determines factors of whole numbers	
	Identifies numbers as prime	
	Identifies common factors of two or more numbers	
	Identifies the greatest common factor of whole numbers	
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Identifies the numeral and written name for whole numbers over	Converts fractions to lowest terms	Graphs ordered pairs in all quadrants
100,000 • Compares whole numbers through the billions using the symbols <, >,	Predicts the relative size of the answer when computing with 10's, 100's, 1000's	<ul> <li>Writes equivalent forms of whole numbers using place value (numbers 100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> </ul>
100,000		
100,000 • Compares whole numbers through the billions using the symbols <, >,	100's, 1000's	100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)
100,000 • Compares whole numbers through the billions using the symbols <, >, or =	100's, 1000's     Predicts the relative size of the answer when multiplying whole numbers     Determines the distance between horizontal and vertical lines in the	100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)  • Writes whole numbers in standard and exponential form
<ul> <li>100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</li> <li>Orders whole numbers a million or greater using &lt; or &gt; symbols</li> </ul>	100's, 1000's     Predicts the relative size of the answer when multiplying whole numbers     Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> </ul>
<ul> <li>100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</li> <li>Orders whole numbers a million or greater using &lt; or &gt; symbols</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten</li> </ul>	100's, 1000's     Predicts the relative size of the answer when multiplying whole numbers     Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system     Locates the origin on a coordinate grid	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> </ul>
100,000  • Compares whole numbers through the billions using the symbols <, >, or =  • Orders whole numbers a million or greater using < or > symbols  • Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten  • Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred  • Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand  • Rounds whole numbers to the nearest hundred thousand	<ul> <li>100's, 1000's</li> <li>Predicts the relative size of the answer when multiplying whole numbers</li> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> <li>Locates the origin on a coordinate grid</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> </ul>	<ul> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> <li>Determines simple equivalent fractions using multiples</li> </ul>
100,000  • Compares whole numbers through the billions using the symbols <, >, or =  • Orders whole numbers a million or greater using < or > symbols  • Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten  • Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred  • Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand  • Rounds whole numbers to the nearest hundred thousand  • Rounds wholes numbers to the nearest billion	<ul> <li>100's, 1000's</li> <li>Predicts the relative size of the answer when multiplying whole numbers</li> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> <li>Locates the origin on a coordinate grid</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> </ul>	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> <li>Determines simple equivalent fractions using multiples</li> <li>Determines equivalent fractions using multiples</li> </ul>
<ul> <li>100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</li> <li>Orders whole numbers a million or greater using &lt; or &gt; symbols</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds whole numbers to the nearest hundred thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Compares integers on a number line</li> </ul>	<ul> <li>100's, 1000's</li> <li>Predicts the relative size of the answer when multiplying whole numbers</li> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> <li>Locates the origin on a coordinate grid</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand</li> </ul>	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> <li>Determines simple equivalent fractions using multiples</li> <li>Determines equivalent fractions using multiples</li> <li>Compares fractions (e.g., comparing numerators and denominators)</li> <li>Uses alternative algorithms to explain the meaning of "fraction"</li> <li>Represents a decimal to thousandths place (e.g., three thousandths =</li> </ul>
<ul> <li>100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</li> <li>Orders whole numbers a million or greater using &lt; or &gt; symbols</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds whole numbers to the nearest hundred thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Compares integers on a number line</li> <li>Explains the rules for rounding</li> </ul>	<ul> <li>100's, 1000's</li> <li>Predicts the relative size of the answer when multiplying whole numbers</li> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> <li>Locates the origin on a coordinate grid</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand</li> <li>Rounds wholes numbers to the nearest billion</li> </ul>	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> <li>Determines simple equivalent fractions using multiples</li> <li>Determines equivalent fractions using multiples</li> <li>Compares fractions (e.g., comparing numerators and denominators)</li> <li>Uses alternative algorithms to explain the meaning of "fraction"</li> <li>Represents a decimal to thousandths place (e.g., three thousandths = 0.003)</li> </ul>
<ul> <li>100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</li> <li>Orders whole numbers a million or greater using &lt; or &gt; symbols</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds whole numbers to the nearest hundred thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Compares integers on a number line</li> </ul>	<ul> <li>100's, 1000's</li> <li>Predicts the relative size of the answer when multiplying whole numbers</li> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> <li>Locates the origin on a coordinate grid</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Writes whole numbers in standard and expanded form through the hundred thousands</li> </ul>	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> <li>Determines simple equivalent fractions using multiples</li> <li>Determines equivalent fractions using multiples</li> <li>Compares fractions (e.g., comparing numerators and denominators)</li> <li>Uses alternative algorithms to explain the meaning of "fraction"</li> <li>Represents a decimal to thousandths place (e.g., three thousandths =</li> </ul>
<ul> <li>100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</li> <li>Orders whole numbers a million or greater using &lt; or &gt; symbols</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds whole numbers to the nearest hundred thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Compares integers on a number line</li> <li>Explains the rules for rounding</li> <li>Writes equivalent forms of whole numbers using place value (e.g., 54 = 4 tens and 14 ones)</li> <li>Identifies the place value and value of each digit in whole numbers</li> </ul>	<ul> <li>100's, 1000's</li> <li>Predicts the relative size of the answer when multiplying whole numbers</li> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> <li>Locates the origin on a coordinate grid</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Writes whole numbers in standard and expanded form through the hundred thousands</li> <li>Identifies equivalent fractions using visual representations</li> </ul>	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> <li>Determines simple equivalent fractions using multiples</li> <li>Determines equivalent fractions using multiples</li> <li>Compares fractions (e.g., comparing numerators and denominators)</li> <li>Uses alternative algorithms to explain the meaning of "fraction"</li> <li>Represents a decimal to thousandths place (e.g., three thousandths = 0.003)</li> <li>Represents a decimal to the hundred thousandths place - (e.g., three</li> </ul>
<ul> <li>100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</li> <li>Orders whole numbers a million or greater using &lt; or &gt; symbols</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds whole numbers to the nearest hundred thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Compares integers on a number line</li> <li>Explains the rules for rounding</li> <li>Writes equivalent forms of whole numbers using place value (e.g., 54 = 4 tens and 14 ones)</li> <li>Identifies the place value and value of each digit in whole numbers through the billions</li> </ul>	<ul> <li>100's, 1000's</li> <li>Predicts the relative size of the answer when multiplying whole numbers</li> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> <li>Locates the origin on a coordinate grid</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Writes whole numbers in standard and expanded form through the hundred thousands</li> <li>Identifies equivalent fractions using visual representations</li> <li>Identifies a fractions in lowest terms from a region or set</li> </ul>	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> <li>Determines simple equivalent fractions using multiples</li> <li>Determines equivalent fractions using multiples</li> <li>Compares fractions (e.g., comparing numerators and denominators)</li> <li>Uses alternative algorithms to explain the meaning of "fraction"</li> <li>Represents a decimal to thousandths place (e.g., three thousandths = 0.003)</li> <li>Represents a decimal to the hundred thousandths place - (e.g., three hundred thousandths = 0.00003)</li> <li>Writes a decimal for a shaded region to the hundredths place</li> <li>Compares and orders decimals to the hundredths place (not same</li> </ul>
<ul> <li>100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</li> <li>Orders whole numbers a million or greater using &lt; or &gt; symbols</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds whole numbers to the nearest hundred thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Compares integers on a number line</li> <li>Explains the rules for rounding</li> <li>Writes equivalent forms of whole numbers using place value (e.g., 54 = 4 tens and 14 ones)</li> <li>Identifies the place value and value of each digit in whole numbers</li> </ul>	<ul> <li>100's, 1000's</li> <li>Predicts the relative size of the answer when multiplying whole numbers</li> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> <li>Locates the origin on a coordinate grid</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand</li> <li>Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand</li> <li>Rounds wholes numbers to the nearest billion</li> <li>Writes whole numbers in standard and expanded form through the hundred thousands</li> <li>Identifies equivalent fractions using visual representations</li> </ul>	<ul> <li>100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> <li>Writes whole numbers in standard and exponential form</li> <li>Identifies a fractions in lowest terms from a region or set</li> <li>Rounds decimals to nearest thousandth</li> <li>Determines simple equivalent fractions using multiples</li> <li>Determines equivalent fractions using multiples</li> <li>Compares fractions (e.g., comparing numerators and denominators)</li> <li>Uses alternative algorithms to explain the meaning of "fraction"</li> <li>Represents a decimal to thousandths place (e.g., three thousandths = 0.003)</li> <li>Represents a decimal to the hundred thousandths place - (e.g., three hundred thousandths = 0.00003)</li> <li>Writes a decimal for a shaded region to the hundredths place</li> </ul>

#### Explanatory Notes



Mathematics RIT Score Range: 211 - 220

Goal: The Real and Complex Number Systems

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
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
<ul> <li>Applies base ten place value concepts with whole numbers to solve problems</li> </ul>	Writes mixed numbers as improper fractions and improper fractions as mixed numbers	<ul> <li>Compares and orders decimals to the thousandths place (not same number of digits after decimal)</li> </ul>
<ul> <li>Writes whole numbers using place value terms and vice versa</li> </ul>	Compares fractions on a number line	Compares and orders decimals past the thousandths place
<ul> <li>Identifies halves of a region using nonadjacent parts</li> </ul>	Compares fractions greater than or less than a given fraction using	Rounds decimals to the nearest hundredth
<ul> <li>Identifies equivalent fractions using visual representations</li> </ul>	visual representations	• Identifies the place value and value of each digit to the hundredths and
<ul> <li>Expresses "1" in many different ways (e.g., 3/3, 4/4)</li> </ul>	Compares fractions and mixed numbers	thousandths
<ul> <li>Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters)</li> </ul>	Compares fractions and mixed numbers using symbols     Orders fractions on a number line	<ul> <li>Applies base ten place value concepts to solve problems using decimals</li> </ul>
Writes mixed numbers as improper fractions and improper fractions as	Explains different interpretations of fractions (e.g., parts of a whole,	Compares two integers
mixed numbers	parts of a set, and division of whole numbers by whole numbers)	Orders integers on a number line
<ul> <li>Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10)</li> </ul>	Represents a decimal to the hundredths place (e.g., three hundredths = 0.03)	Orders integers     Locates rational numbers on a number line
<ul> <li>Identifies whole numbers over 999 using base-10 blocks</li> </ul>	Compares and orders decimals past the thousandths place	Orders rational numbers, in a/b form
• Identifies the numeral and written name for whole numbers with a zero	Rounds decimals to the nearest whole number	Orders fractions and decimals to the hundred thousandths
between digits to the ten thousands place	Rounds decimals to the nearest tenth	Determines the relative magnitude of whole numbers
Orders fractions on a number line	Applies base ten place value concepts to solve problems using	Rounds whole numbers to the nearest million
<ul> <li>Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)</li> </ul>	decimals  • Identifies an integer from a number line	Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)
<ul> <li>Identifies a decimal on a number line to the tenths place</li> </ul>	Compares two integers	(Horizontal and Vertical lines)
<ul> <li>Rounds decimals to the nearest whole number</li> </ul>	Orders integers on a number line	
<ul> <li>Graphs ordered pairs in the first quadrant</li> </ul>	Defines "integers"	
<ul> <li>Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)</li> </ul>		
<ul> <li>Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system</li> </ul>		
<ul> <li>Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks)</li> </ul>		
<ul> <li>Locates the origin on a coordinate grid</li> </ul>		
New Vocabulary: biggest, coordinate, coordinate point, expanded	New Vocabulary: century, coin, common factor, decimal form, greatest	New Vocabulary: real number, ten million
numeral, larger, miles per gallon, origin	common factor, how long, lowest term, lowest terms, reduce, triple	New Signs and Symbols: () parenthesis around an integer, cm
New Signs and Symbols: ft feet, in. inch, mpg miles per gallon, - negative number	New Signs and Symbols: \$ dollar sign, hr hour, kg kilogram, - negative sign, not equal to, yd yard	centimeter/centimetre, °C degrees Celsius, km kilometer/kilometre, mL milliliter/millilitre, # number, / per, + positive number, : ratio

#### **Explanatory Notes**



Mathematics RIT Score Range: 221 - 230

Goal: The Real and Complex Number Systems

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
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
<ul> <li>Solves problems involving equivalent fractions</li> </ul>	Solves real-world problems involving decimals (not money) using	Writes a ratio as a percent and vice versa
<ul> <li>Solves 1-step problems involving proportions</li> </ul>	multiplication	Identifies the ratio from a given real-world situation
<ul> <li>Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%)</li> </ul>	Solves problems involving ratios     Solves 1-step problems involving proportions	Uses estimation to solve problems involving proportional reasoning (decimals only)
<ul> <li>Converts between inches and feet</li> <li>Converts between inches, feet, and yards</li> </ul>	Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%)	Solves real-world problems involving decimals (not money) using multiplication
Solves simple problems involving measurement of length	Calculates a percent of a number (e.g., 6% of 30)	Solves problems involving equivalent fractions (analysis)
Converts between cups, pints, quarts, and gallons	Calculates a number from a percent (e.g., 4 is 9% of what)	Solves problems involving ratios
Apply dimensional analysis to simple real-world problems (capacity)	Solves problems involving percents	Solves multiple-step problems involving proportions
Computes more difficult conversions among units of time	Solves problems involving tax and tips	Calculates a percent of a number (e.g., 6% of 30)
Applies dimensional analysis to simple real-world problems (time)	Converts between inches, feet, and yards	Calculates the percent one number is of another (e.g., 20 is what % of
Solves simple problems involving miles per gallon	Converts between millimeters, centimeters, meters, and kilometers	90)
Determines unit price	Uses dimensional analysis for unit conversions (length)	Solves problems involving percents
Solves problems involving rates	Uses concrete and pictorial models to represent ratios	Solves problems involving percents (analysis)
Writes a basic percent as a fraction and vice versa (e.g., 10%, 25%, 50%, 100%)	Solves problems involving length in the customary system and converts to larger or smaller units	Solves problems involving simple percent discounts (e.g., finding sale price)
Expresses a percent as a fraction with 100 as the denominator and	Converts between ounces and pounds	Solves problems involving percent increase and decrease
vice versa	Converts between ounces, pounds, and tons	Solves problems involving tax and tips
Recognizes and writes proportions	Converts between cups, pints, quarts, and gallons	Calculates commission/deductions and total pay
Identifies the percent represented in a 2-D region	Converts within the metric system	Converts between millimeters, centimeters, meters, and kilometers
	Apply dimensional analysis to simple real-world problems (capacity)	Uses dimensional analysis for unit conversions (length)
	Solves problems involving capacity in the customary system and converts to larger or smaller units	Converts between the customary and metric system given conversion ratios (2-step, length)
	Computes 2-step conversions between units of time	Apply dimensional analysis to simple real-world problems (length)
	Applies dimensional analysis to simple real-world problems (time)	Solves problems involving length in the customary system and converts to larger or smaller units
	Writes the missing number in a proportion with numbers other than basic facts (e.g., 5/13=?/117)	Converts between grams and kilograms
	Solves complex problems involving miles per gallon	Solves problems involving weight in the customary system and converts to larger or smaller units
	Solves complex problems involving miles/kilometers per hour	Converts within the metric system
	Solves problems involving rates	Apply dimensional analysis to simple real-world problems (capacity)
	Solves problems involving perimeter and converts to larger or smaller units	Solves problems involving capacity in the customary system and converts to larger or smaller units
	Expresses a percent as a fraction and vice versa	Solves complex problems involving miles per gallon
	Interprets data given in circle graphs to solve complex problems (with	Solves complex problems involving filles per gallori     Solves problems comparing unit prices
	percents)	Solves problems companing unit prices     Solves problems involving rates
	Writes a ratio as a percent and vice versa	Interprets data given in circle graphs to solve complex problems (with
		percents)
		Expresses a percent as a fraction and vice versa

#### **Explanatory Notes**



221 - 230 RIT Score Range: **Mathematics** 

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
Subtracts mixed fractions with like denominators with no regrouping	Divides a decimal by a decimal	Identifies the additive inverse property
<ul> <li>Uses rounding to estimate answers to real-world problems involving</li> </ul>	Uses rounding to estimate answers to real-world problems involving	Divides multiple-digit numbers
multiplication and division of numbers less than 100 (whole numbers	multiplication and division of numbers less than 100 (whole numbers	Divides numbers by powers of 10
only)  • Uses rounding to estimate answers to real-world problems involving	only)  • Uses rounding to estimate answers to real-world problems involving	Adds fractions with unlike denominators with reducing or converting to
numbers less than 1000 with multiplication and division (whole numbers	numbers less than 1000 with multiplication and division (whole numbers	a mixed fraction
only)	only)	Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)
Uses rounding to estimate answers to real-world problems involving	Uses rounding to estimate answers to real-world problems involving	Adds mixed fractions where converting from improper fractions is
numbers 1000 or greater using multiplication and division (whole numbers only)	numbers 1000 or greater using multiplication and division (whole numbers only)	necessary
Uses rounding to estimate answers to difficult multiplication and	Multiplies multiple-digit numbers	Subtracts whole numbers, fractions, and mixed fractions
division problems (whole numbers only)	Divides a 4-digit number by a 2-digit number	Subtracts whole numbers, fractions, and mixed fractions with
<ul> <li>Subtracts numbers with 5 digits or more with regrouping</li> </ul>	Divides multiple-digit numbers	regrouping
<ul> <li>Instantly recalls basic multiplication and division facts in a table</li> </ul>	Solves complex word problems involving whole number division with	Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary
<ul> <li>Multiplies a 2-digit number by a 2-digit number with regrouping</li> </ul>	remainder (e.g., 2-step, 2-digit divisor)	Uses models to multiply and divide fractions and connect the actions
<ul> <li>Multiplies a 3-digit number by a 2-digit number with regrouping</li> </ul>	Solves real-world multiple-step problems involving whole numbers	to algorithms
Performs mental computation with multiplication	Demonstrates an understanding of multiple properties	Multiplies mixed fractions
<ul> <li>Uses multiplication strategies to explain computation (e.g., doubles, 9- patterns, decomposing, partial products)</li> </ul>	Adds fractions with like denominators with reducing or converting to a mixed fraction	Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms
<ul> <li>Multiplies a 3-digit number by a 3-digit number</li> </ul>	Adds fractions with unlike denominators without reducing	Divides a fraction by a fraction
<ul> <li>Multiplies a 4- or more digit number by multiples of 100 or 1000</li> </ul>	Adds fractions with unlike denominators with reducing or converting to	Divides a fraction by a whole number
Multiplies multiple-digit numbers	a mixed fraction	Divides a whole number by a fraction
<ul> <li>Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)</li> </ul>	<ul> <li>Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)</li> </ul>	Divides a mixed fraction by a whole number
• Divides a 2-digit number or a 3-digit number by a 1-digit number with a	Adds mixed fractions where converting from improper fractions is	Divides a whole number by a mixed fraction
remainder	necessary	Divides a mixed fraction by a fraction
Performs mental computation with division	Subtracts fractions with like denominators with reducing	Divides a fraction by a mixed fraction
<ul> <li>Divides a 4-digit number by a 1-digit number with no remainder</li> </ul>	Subtracts fractions with unlike denominators without reducing	Divides a mixed fraction by a mixed fraction
<ul> <li>Divides a 3-digit number by a 2-digit number</li> </ul>	Subtracts fractions with unlike denominators with reducing	Solves 2- or more step real-world problems involving fractions with multiplication and division
<ul> <li>Divides a 4-digit number by a 2-digit number</li> </ul>	Subtracts mixed fractions with unlike denominators with no regrouping     Out to set with all a great and a set of the set of t	Solves problems involving fractions (e.g., multiple operations,
Divides multiple-digit numbers	Subtracts whole numbers, fractions, and mixed fractions     Subtracts whole numbers fractions, and mixed fractions with	conversions)
<ul> <li>Solves whole number word problems with division over 10 x 10</li> </ul>	Subtracts whole numbers, fractions, and mixed fractions with regrouping	Subtracts a decimal from a whole number, horizontally
<ul> <li>Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor)</li> </ul>	Solves real-world problems involving addition and subtraction of	Multiplies a decimal by 10, 100, 1000
Solves real-world problems involving 2-step multiple operations, whole	fractions where converting one denominator is necessary	Divides a whole number by a decimal
numbers only	Uses models to multiply and divide fractions and connect the actions	• Divides a decimal by 10, 100, 1000
Solves real-world multiple-step problems involving whole numbers	to algorithms	Divides a decimal by a decimal
Demonstrates an understanding of the inverse relationship between	Multiplies a fraction by a fraction without reducing to simplest form (complex problem)	Adds integers with unlike signs
addition and subtraction	Multiplies a fraction by a fraction where reducing to simplest form is	Adds several positive and negative integers
<ul> <li>Adds fractions with like denominators without reducing</li> </ul>	necessary	Subtracts integers
	Multiplies a fraction by a whole number	Solves problems involving addition and subtraction of integers
Explanatory Notes		



Mathematics RIT Score Range:

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
Adds fractions with like denominators with reducing or converting to a	Multiplies mixed fractions	Multiplies integers with like signs
mixed fraction	Divides a fraction by a fraction	Divides integers with like signs
<ul> <li>Adds fractions with unlike denominators without reducing</li> </ul>	Divides a mixed fraction by a fraction	Subtracts rational expressions in decimal form
<ul> <li>Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)</li> </ul>	Solves 1-step real-world problems involving fractions with multiplication and division	Multiplies rational expressions     Interprets data given in tables to solve problems
<ul> <li>Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths)</li> </ul>	Solves 2- or more step real-world problems involving fractions with multiplication and division	Writes a fraction as a decimal and vice versa
<ul> <li>Subtracts fractions with unlike denominators without reducing</li> </ul>	Solves problems involving fractions (e.g., multiple operations,	Writes a fraction as a mixed decimal and vice versa
Subtracts mixed fractions with unlike denominators with no regrouping	conversions)	
<ul> <li>Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary</li> </ul>	Adds decimals to the hundredths place in horizontal format (not same number of digits)	
<ul> <li>Uses models to multiply and divide fractions and connect the actions to algorithms</li> </ul>	Adds decimals through the hundred-thousandths place     Cub to the decimals to the hundred the place (act again a purchas of digital).	
Multiplies a fraction by a fraction where reducing to simplest form is necessary	Subtracts decimals to the hundredths place (not same number of digits)     Subtracts decimals to the thousandths place, horizontally, with and without regrouping	
Multiplies a fraction by a whole number	Subtracts decimals through the hundred-thousandths place,	
<ul> <li>Solves 1-step real-world problems involving fractions with multiplication and division</li> </ul>	horizontally  • Subtracts a decimal from a whole number, horizontally	
Adds decimals to the hundredths place in horizontal format (not same number of digits)	Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths)	
<ul> <li>Adds decimals to the thousandths place horizontally with and without regrouping</li> </ul>	Multiplies a decimal by a decimal (factors to hundredths)	
Adds decimals through the hundred-thousandths place	Multiplies a decimal by 10, 100, 1000	
Subtracts decimals to the thousandths place, horizontally, with and without regrouping	Multiplies a decimal by a decimal (factors to thousandths)     Divides a decimal by 10, 100, 1000	
Computes the value of multiple bills and coins (addition/subtraction only)	Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)	
Analyzes and computes 1 operation on real-world problems involving	Computes the value of multiple bills and coins (multiplication/division)	
money over \$5.00 (addition/subtraction only)	Calculate the sum of integers using a number line	
Multiplies a decimal by a decimal, vertical form (factors to tenths or	Adds integers with unlike signs	
hundredths)	Adds several positive and negative integers	
<ul><li>Multiplies a decimal by a decimal (factors to hundredths)</li><li>Divides decimal by a whole number</li></ul>	Uses models to add and subtract integers and connect the actions to algorithms	
Analyzes and computes 1 operation on real-world problems involving	Subtracts integers	
money over \$5.00 (multiplication/division)	Solves real-world problems involving addition and subtraction of	
<ul> <li>Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)</li> </ul>	integers  • Solves problems involving addition and subtraction of integers	
<ul> <li>Computes addition and subtraction on multiple-step real-world problems involving money</li> </ul>	Multiplies integers with unlike signs	
Computes addition, subtraction, multiplication, and division on multiple-	Divides integers with unlike signs	
step, real-world problems involving money	Divides integers with like signs	
Adds integers with like signs	Adds rational expressions in decimal form	

#### **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.

221 - 230



Mathematics RIT Score Range: 221 - 230

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
Uses models to add and subtract integers and connect the actions to algorithms	Identifies the additive inverse property     Solves difficult problems involving elapsed time, with the conversion of	
Solves real-world problems involving addition and subtraction of integers	hours  Interprets data given in tables to solve problems	
Multiplies integers with unlike signs	Writes a simple mixed fraction as a decimal and vice versa	
Divides integers with unlike signs	Writes a fraction or mixed number as a decimal when the denominator	
Divides integers with like signs	is a multiple of 10	
• Demonstrates an understanding that division by 0 is undefined	Determines factors of whole numbers	
• Solves difficult problems involving elapsed time, with the conversion of hours	Uses multiple number theory concepts to solve problems (e.g., factors, digits, odd/even, divisibility)	
• Selects and uses the appropriate units depending on degree of	Uses factor and multiple concepts to solve simple problems	
accuracy required to solve problems	Identifies common factors of two or more numbers	
Expresses a simple fraction as a decimal	Identifies the greatest common factor of whole numbers	
Writes a simple mixed fraction as a decimal and vice versa		
<ul> <li>Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10</li> </ul>		
<ul> <li>Expresses a percent as a decimal and vice versa</li> </ul>		
<ul> <li>Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)</li> </ul>		
Determines factors of whole numbers		
Identifies numbers as prime		
<ul> <li>Identifies common factors of two or more numbers</li> </ul>		
<ul> <li>Identifies the greatest common factor of whole numbers</li> </ul>		
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Converts fractions to lowest terms	Graphs ordered pairs in all quadrants	Graphs ordered pairs in all quadrants
• Predicts the relative size of the answer when computing with 10's,	Writes equivalent forms of whole numbers using place value (numbers	Simplifies rational expressions with absolute value
<ul><li>100's, 1000's</li><li>Predicts the relative size of the answer when multiplying whole</li></ul>	100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)  • Writes whole numbers in standard and exponential form	Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)
numbers	Identifies a fractions in lowest terms from a region or set	Determines the relative magnitude of whole numbers
Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system	Rounds decimals to nearest thousandth	Writes whole numbers in standard and exponential form
Locates the origin on a coordinate grid	Determines simple equivalent fractions using multiples	Compares fractions (e.g., comparing numerators and denominators)
• Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred	Determines equivalent fractions using multiples	Rounds decimals to the nearest hundredth
• Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand	Compares fractions (e.g., comparing numerators and denominators)  Ligas alternative algorithms to explain the magning of "fraction"	Compares and orders decimal and fractional coordinates on a number line
• Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand	Uses alternative algorithms to explain the meaning of "fraction"      Property of designal to the use of the place (e.g., three the use of the place)	
<ul> <li>Rounds wholes numbers to the nearest billion</li> </ul>	• Represents a decimal to thousandths place (e.g., three thousandths = 0.003)	
Writes whole numbers in standard and expanded form through the hundred thousands	Represents a decimal to the hundred thousandths place - (e.g., three hundred thousandths = 0. 00003)	
<ul> <li>Identifies equivalent fractions using visual representations</li> <li>Identifies a fractions in lowest terms from a region or set</li> </ul>	Writes a decimal for a shaded region to the hundredths place	

#### **Explanatory Notes**



Mathematics RIT Score Range: 221 - 230

Goal: The Real and Complex Number Systems

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
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
• Identifies eighths, reduced to lowest terms, from a region or set	Compares and orders decimals to the hundredths place (not same)	
Determines simple equivalent fractions using multiples	number of digits after decimal)	
Writes mixed numbers as improper fractions and improper fractions as mixed numbers	Compares and orders decimals to the thousandths place (not same number of digits after decimal)	
Compares fractions on a number line	Compares and orders decimals past the thousandths place	
Compares fractions greater than or less than a given fraction using	Rounds decimals to the nearest hundredth	
visual representations	• Identifies the place value and value of each digit to the hundredths and	
<ul> <li>Compares fractions and mixed numbers</li> </ul>	thousandths	
<ul> <li>Compares fractions and mixed numbers using symbols</li> </ul>	Applies base ten place value concepts to solve problems using decimals	
Orders fractions on a number line	Compares two integers	
Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)	Orders integers on a number line	
Represents a decimal to the hundredths place (e.g., three hundredths)	Orders integers	
= 0.03)	Locates rational numbers on a number line	
Compares and orders decimals past the thousandths place	Orders rational numbers, in a/b form	
<ul> <li>Rounds decimals to the nearest whole number</li> </ul>	Orders fractions and decimals to the hundred thousandths	
Rounds decimals to the nearest tenth	Determines the relative magnitude of whole numbers	
<ul> <li>Applies base ten place value concepts to solve problems using</li> </ul>	Rounds whole numbers to the nearest million	
decimals	Computes and interprets distance, given a set of ordered pairs	
<ul> <li>Identifies an integer from a number line</li> </ul>	(horizontal and vertical lines)	
Compares two integers		
Orders integers on a number line		
Defines "integers"		
New Vocabulary: century, coin, common factor, decimal form, greatest	New Vocabulary: real number, ten million	New Vocabulary: discount, equality
common factor, how long, lowest term, lowest terms, reduce, triple	New Signs and Symbols: () parenthesis around an integer, cm	New Signs and Symbols:    absolute value, oz ounce
New Signs and Symbols: \$ dollar sign, hr hour, kg kilogram, - negative sign, not equal to, yd yard	centimeter/centimetre, °C degrees Celsius, km kilometer/kilometre, mL milliliter/millilitre, # number, / per, + positive number, : ratio	

#### **Explanatory Notes**



Mathematics RIT Score Range:

Goal: The Real and Complex Number Systems

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
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
<ul> <li>Solves real-world problems involving decimals (not money) using multiplication</li> </ul>	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
<ul> <li>Solves problems involving ratios</li> </ul>	Uses estimation to solve problems involving proportional reasoning	Solves multiple-step problems involving proportions
<ul> <li>Solves 1-step problems involving proportions</li> </ul>	(decimals only)	Solves problems involving a fractional increase
<ul> <li>Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%)</li> </ul>	Solves real-world problems involving decimals (not money) using multiplication	Calculates the percent one number is of another (e.g., 20 is what % of 90)
<ul> <li>Calculates a percent of a number (e.g., 6% of 30)</li> </ul>	Solves problems involving equivalent fractions (analysis)	Calculates a percent of a rational number (e.g., 6% of 0.78)
<ul> <li>Calculates a number from a percent (e.g., 4 is 9% of what)</li> </ul>	Solves problems involving ratios	Solves problems involving percents (analysis)
<ul> <li>Solves problems involving percents</li> </ul>	Solves multiple-step problems involving proportions	Solves problems involving simple percent discounts (e.g., finding sale)
<ul> <li>Solves problems involving tax and tips</li> </ul>	Calculates a percent of a number (e.g., 6% of 30)	price)
<ul> <li>Converts between inches, feet, and yards</li> </ul>	Calculates the percent one number is of another (e.g., 20 is what % of	Solves problems involving complex percent discounts (e.g., finding
<ul> <li>Converts between millimeters, centimeters, meters, and kilometers</li> </ul>	90)	percent discount, regular price)
<ul> <li>Uses dimensional analysis for unit conversions (length)</li> </ul>	Solves problems involving percents	Calculates commission/deductions and total pay
<ul> <li>Uses concrete and pictorial models to represent ratios</li> </ul>	Solves problems involving percents (analysis)	Solves problems involving successive discounts
<ul> <li>Solves problems involving length in the customary system and converts to larger or smaller units</li> </ul>	<ul> <li>Solves problems involving simple percent discounts (e.g., finding sale price)</li> </ul>	Uses dimensional analysis for unit conversions (length)     Apply dimensional analysis to simple real-world problems (length)
Converts between ounces and pounds	Solves problems involving percent increase and decrease	Solves problems involving weight in the customary system and
Converts between ounces, pounds, and tons	Solves problems involving tax and tips	converts to larger or smaller units
Converts between cups, pints, quarts, and gallons	Calculates commission/deductions and total pay	Uses dimensional analysis for unit conversions (time)
Converts within the metric system	Converts between millimeters, centimeters, meters, and kilometers	Solves problems involving rate conversions (e.g., mi/hr to ft/sec)
Apply dimensional analysis to simple real-world problems (capacity)	Uses dimensional analysis for unit conversions (length)	Identifies the ratio from a given real-world situation
Solves problems involving capacity in the customary system and converts to larger or smaller units	Converts between the customary and metric system given conversion ratios (2-step, length)	
Computes 2-step conversions between units of time	Apply dimensional analysis to simple real-world problems (length)	
Applies dimensional analysis to simple real-world problems (time)	Solves problems involving length in the customary system and	
<ul> <li>Writes the missing number in a proportion with numbers other than basic facts (e.g., 5/13=?/117)</li> </ul>	converts to larger or smaller units  Converts between grams and kilograms	
Solves complex problems involving miles per gallon	Solves problems involving weight in the customary system and	
Solves complex problems involving miles/kilometers per hour	converts to larger or smaller units	
Solves problems involving rates	Converts within the metric system	
Solves problems involving perimeter and converts to larger or smaller	Apply dimensional analysis to simple real-world problems (capacity)	
units	Solves problems involving capacity in the customary system and converts to larger or smaller units	
Expresses a percent as a fraction and vice versa	Solves complex problems involving miles per gallon	
<ul> <li>Interprets data given in circle graphs to solve complex problems (with percents)</li> </ul>	Solves problems comparing unit prices	
Writes a ratio as a percent and vice versa	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	

#### **Explanatory Notes**

\* Åt 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.

231 - 240



Mathematics RIT Score Range: 231 - 240

Goal: The Real and Complex Number Systems

Skills and concepts to Enhance (73% Probability*)	Skills and Concepts to Develop (50% Probability*)	Skills and Concepts to Introduce (27% Probability*)
221 - 230	231 - 240	241 - 250
Perform Operations	Perform Operations	Perform Operations
Divides a decimal by a decimal	Identifies the additive inverse property	Subtracts integers
<ul> <li>Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers</li> </ul>	Divides multiple-digit numbers	Uses a number line to determine the distance between a positive and negative number
only)	Divides numbers by powers of 10	Uses the multiplicative inverse property with rational numbers
Uses rounding to estimate answers to real-world problems involving	Adds fractions with unlike denominators with reducing or converting to a mixed fraction	Uses factor and multiple concepts to solve difficult problems
numbers less than 1000 with multiplication and division (whole numbers only)	Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)	Identifies the least common multiple of whole numbers
<ul> <li>Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)</li> </ul>	Adds mixed fractions where converting from improper fractions is necessary	
Multiplies multiple-digit numbers	Subtracts whole numbers, fractions, and mixed fractions	
Divides a 4-digit number by a 2-digit number	Subtracts whole numbers, fractions, and mixed fractions with	
Divides multiple-digit numbers	regrouping	
Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor)	Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary	
Solves real-world multiple-step problems involving whole numbers	Uses models to multiply and divide fractions and connect the actions to algorithms	
<ul> <li>Demonstrates an understanding of multiple properties</li> </ul>	Multiplies mixed fractions	
<ul> <li>Adds fractions with like denominators with reducing or converting to a mixed fraction</li> </ul>	Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms	
Adds fractions with unlike denominators without reducing	Divides a fraction by a fraction	
Adds fractions with unlike denominators with reducing or converting to	Divides a fraction by a whole number	
a mixed fraction	Divides a whole number by a fraction	
<ul> <li>Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)</li> </ul>	Divides a mixed fraction by a whole number	
Adds mixed fractions where converting from improper fractions is	Divides a whole number by a mixed fraction	
necessary	Divides a mixed fraction by a fraction	
Subtracts fractions with like denominators with reducing	Divides a fraction by a mixed fraction	
<ul> <li>Subtracts fractions with unlike denominators without reducing</li> </ul>	Divides a mixed fraction by a mixed fraction	
<ul> <li>Subtracts fractions with unlike denominators with reducing</li> </ul>	Solves 2- or more step real-world problems involving fractions with	
• Subtracts mixed fractions with unlike denominators with no regrouping	multiplication and division	
Subtracts whole numbers, fractions, and mixed fractions     Subtracts whole numbers, fractions, and mixed fractions with	Solves problems involving fractions (e.g., multiple operations, conversions)	
<ul> <li>Subtracts whole numbers, fractions, and mixed fractions with regrouping</li> </ul>	Subtracts a decimal from a whole number, horizontally	
Solves real-world problems involving addition and subtraction of	Multiplies a decimal by 10, 100, 1000	
fractions where converting one denominator is necessary	Divides a whole number by a decimal	
<ul> <li>Uses models to multiply and divide fractions and connect the actions to algorithms</li> </ul>	Divides a decimal by 10, 100, 1000     Divides a decimal by a decimal	
Multiplies a fraction by a fraction without reducing to simplest form (complex problem)	Adds integers with unlike signs	
Multiplies a fraction by a fraction where reducing to simplest form is necessary	Adds several positive and negative integers     Subtracts integers	
Multiplies a fraction by a whole number	Solves problems involving addition and subtraction of integers	

#### **Explanatory Notes**



Mathematics RIT Score Range: 231 - 240

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
Multiplies mixed fractions	Multiplies integers with like signs	
Divides a fraction by a fraction	Divides integers with like signs	
Divides a mixed fraction by a fraction	Subtracts rational expressions in decimal form	
Solves 1-step real-world problems involving fractions with multiplication and division	Multiplies rational expressions     Interprets data given in tables to solve problems	
Solves 2- or more step real-world problems involving fractions with multiplication and division	Writes a fraction as a decimal and vice versa	
Solves problems involving fractions (e.g., multiple operations, conversions)	Writes a fraction as a mixed decimal and vice versa	
Adds decimals to the hundredths place in horizontal format (not same number of digits)		
Adds decimals through the hundred-thousandths place		
Subtracts decimals to the hundredths place (not same number of digits)		
Subtracts decimals to the thousandths place, horizontally, with and without regrouping		
Subtracts decimals through the hundred-thousandths place, norizontally		
Subtracts a decimal from a whole number, horizontally		
Multiplies a decimal by a decimal, vertical form (factors to tenths or nundredths)		
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)		
Divides a decimal by 10, 100, 1000		
Computes with dollars and cents over \$5.00 and converts to decimals multiplication/division)		
Computes the value of multiple bills and coins (multiplication/division)		
Calculate the sum of integers using a number line		
Adds integers with unlike signs		
Adds several positive and negative integers		
Uses models to add and subtract integers and connect the actions to algorithms		
Subtracts integers		
Solves real-world problems involving addition and subtraction of ntegers		
Solves problems involving addition and subtraction of integers		
Multiplies integers with unlike signs		
Divides integers with unlike signs		
Divides integers with like signs		
Adds rational expressions in decimal form		

#### **Explanatory Notes**



Mathematics RIT Score Range: 231 - 240

Goal: The Real and Complex Number Systems

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
Perform Operations	Perform Operations	Perform Operations
Identifies the additive inverse property		
Solves difficult problems involving elapsed time, with the conversion of hours		
Interprets data given in tables to solve problems		
Writes a simple mixed fraction as a decimal and vice versa		
Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10		
Determines factors of whole numbers		
• Uses multiple number theory concepts to solve problems (e.g., factors, digits, odd/even, divisibility)		
Uses factor and multiple concepts to solve simple problems		
Identifies common factors of two or more numbers		
Identifies the greatest common factor of whole numbers		
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Graphs ordered pairs in all quadrants	Graphs ordered pairs in all quadrants	Simplifies expressions containing square roots
<ul> <li>Writes equivalent forms of whole numbers using place value (numbers 100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)</li> </ul>	Simplifies rational expressions with absolute value     Computes and interprets distance given a set of ordered pairs.	Estimates the square roots of numbers     Head syntage and with absolute value to represent situations.
Writes whole numbers in standard and exponential form	<ul> <li>Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)</li> </ul>	Uses expressions with absolute value to represent situations     Computes and interprets distance, given a set of ordered pairs
Identifies a fractions in lowest terms from a region or set	Determines the relative magnitude of whole numbers	(horizontal and vertical lines)
Rounds decimals to nearest thousandth	Writes whole numbers in standard and exponential form	,
Determines simple equivalent fractions using multiples	Compares fractions (e.g., comparing numerators and denominators)	
Determines equivalent fractions using multiples	Rounds decimals to the nearest hundredth	
Compares fractions (e.g., comparing numerators and denominators)	Compares and orders decimal and fractional coordinates on a number	
Uses alternative algorithms to explain the meaning of "fraction"	line	
• Represents a decimal to thousandths place (e.g., three thousandths = 0.003)		
• Represents a decimal to the hundred thousandths place - (e.g., three hundred thousandths = 0.00003)		
Writes a decimal for a shaded region to the hundredths place		
Compares and orders decimals to the hundredths place (not same number of digits after decimal)		
Compares and orders decimals to the thousandths place (not same number of digits after decimal)		
Compares and orders decimals past the thousandths place		
Rounds decimals to the nearest hundredth		
• Identifies the place value and value of each digit to the hundredths and thousandths		
<ul> <li>Applies base ten place value concepts to solve problems using decimals</li> </ul>		
Compares two integers		

#### **Explanatory Notes**



Mathematics RIT Score Range: 231 - 240

Goal: The Real and Complex Number Systems

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
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Orders integers on a number line		
Orders integers		
• Locates rational numbers on a number line		
Orders rational numbers, in a/b form		
<ul> <li>Orders fractions and decimals to the hundred thousandths</li> </ul>		
Determines the relative magnitude of whole numbers		
Rounds whole numbers to the nearest million		
• Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)		
New Vocabulary: real number, ten million	New Vocabulary: discount, equality	New Vocabulary: feet per second, least common multiple
New Signs and Symbols: () parenthesis around an integer, cm centimeter/centimetre, °C degrees Celsius, km kilometer/kilometre, mL milliliter/millilitre, # number, / per, + positive number, : ratio	New Signs and Symbols:    absolute value, oz ounce	New Signs and Symbols: LCM lowest common multiple, sec second, square root symbol

#### **Explanatory Notes**



Mathematics RIT Score Range: 241 - 250

Goal: The Real and Complex Number Systems

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

#### **Explanatory Notes**



Mathematics RIT Score Range: 241 - 250

Goal: The Real and Complex Number Systems

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

#### **Explanatory Notes**



Mathematics RIT Score Range: 241 - 250

Goal: The Real and Complex Number Systems

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
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		
• 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
Graphs ordered pairs in all quadrants	Simplifies expressions containing square roots	Simplifies expressions containing square roots
Simplifies rational expressions with absolute value	Estimates the square roots of numbers	Uses expressions with absolute value to represent situations
• Computes and interprets distance, given a set of ordered pairs	Uses expressions with absolute value to represent situations	Simplifies radical expressions
(horizontal and vertical lines)	Computes and interprets distance, given a set of ordered pairs	
<ul> <li>Determines the relative magnitude of whole numbers</li> </ul>	(horizontal and vertical lines)	
<ul> <li>Writes whole numbers in standard and exponential form</li> </ul>		
• 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		
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

#### **Explanatory Notes**



Mathematics RIT Score Range: 251 - 260

Goal: The Real and Complex Number Systems

Skills and concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) 251 - 260	Skills and Concepts to Introduce (27% Probability*) > 260
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
<ul> <li>Solves real-world problems involving decimals (not money) using multiplication</li> </ul>	<ul> <li>Solves problems involving successive discounts</li> <li>Solves problems involving rate conversions (e.g., mi/hr to ft/sec)</li> </ul>	Solves problems involving successive discounts     Solves problems involving rate conversions (e.g., mi/hr to ft/sec)
<ul> <li>Solves multiple-step problems involving proportions</li> </ul>	Solves problems involving complex percent discounts (e.g., finding)	Corres presione in string rate contentions (e.g., marin to 18000)
<ul> <li>Solves problems involving a fractional increase</li> </ul>	percent discount, regular price)	
<ul> <li>Calculates the percent one number is of another (e.g., 20 is what % of 90)</li> </ul>	Uses dimensional analysis for unit conversions (time)	
<ul> <li>Calculates a percent of a rational number (e.g., 6% of 0.78)</li> </ul>		
<ul> <li>Solves problems involving percents (analysis)</li> </ul>		
<ul> <li>Solves problems involving simple percent discounts (e.g., finding sale price)</li> </ul>		
<ul> <li>Solves problems involving complex percent discounts (e.g., finding percent discount, regular price)</li> </ul>		
<ul> <li>Calculates commission/deductions and total pay</li> </ul>		
<ul> <li>Solves problems involving successive discounts</li> </ul>		
<ul> <li>Uses dimensional analysis for unit conversions (length)</li> </ul>		
<ul> <li>Apply dimensional analysis to simple real-world problems (length)</li> </ul>		
<ul> <li>Solves problems involving weight in the customary system and converts to larger or smaller units</li> </ul>		
<ul> <li>Uses dimensional analysis for unit conversions (time)</li> </ul>		
<ul> <li>Solves problems involving rate conversions (e.g., mi/hr to ft/sec)</li> </ul>		
<ul> <li>Identifies the ratio from a given real-world situation</li> </ul>		
Perform Operations	Perform Operations	Perform Operations
Subtracts integers	Uses the additive inverse property with rational numbers	Performs operations on complex numbers and expresses the results in
Uses a number line to determine the distance between a positive and negative number	Uses factor and multiple concepts to solve difficult problems     Performs operations on complex numbers and expresses the results in	simplest form
Uses the multiplicative inverse property with rational numbers	simplest form	
<ul> <li>Uses factor and multiple concepts to solve difficult problems</li> </ul>		
<ul> <li>Identifies the least common multiple of whole numbers</li> </ul>		
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Simplifies expressions containing square roots	Simplifies expressions containing square roots	
Estimates the square roots of numbers	Uses expressions with absolute value to represent situations	
<ul> <li>Uses expressions with absolute value to represent situations</li> </ul>	Simplifies radical expressions	
<ul> <li>Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)</li> </ul>		
New Vocabulary: feet per second, least common multiple	New Vocabulary: None	New Vocabulary: None
New Signs and Symbols: LCM lowest common multiple, sec second, square root symbol	New Signs and Symbols: i square root of -1	New Signs and Symbols: None

#### **Explanatory Notes**



Mathematics RIT Score Range: > 260

Goal: The Real and Complex Number Systems

Skills and concepts to Enhance (73% Probability*) 251 - 260	Skills and Concepts to Develop (50% Probability*) > 260
Ratios and Proportional Relationships	Ratios and Proportional Relationships
<ul> <li>Solves problems involving successive discounts</li> </ul>	Solves problems involving successive discounts
<ul> <li>Solves problems involving rate conversions (e.g., mi/hr to ft/sec)</li> </ul>	Solves problems involving rate conversions (e.g., mi/hr to ft/sec)
<ul> <li>Solves problems involving complex percent discounts (e.g., finding percent discount, regular price)</li> </ul>	
<ul> <li>Uses dimensional analysis for unit conversions (time)</li> </ul>	
Perform Operations	Perform Operations
<ul> <li>Uses the additive inverse property with rational numbers</li> </ul>	• Performs operations on complex numbers and expresses the results in
<ul> <li>Uses factor and multiple concepts to solve difficult problems</li> </ul>	simplest form
<ul> <li>Performs operations on complex numbers and expresses the results in simplest form</li> </ul>	
Extend and Use Properties	Extend and Use Properties
Simplifies expressions containing square roots	
<ul> <li>Uses expressions with absolute value to represent situations</li> </ul>	
Simplifies radical expressions	
New Vocabulary: None	New Vocabulary: None
New Signs and Symbols: i square root of -1	New Signs and Symbols: None

#### **Explanatory Notes**