

## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: < 161 Statements Last Updated: Aug 4, 2014

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
<ul> <li>Uses models to construct whole number addition facts with addends through 10</li> </ul>	Uses a number line to construct addition facts with sums through 20 (whole numbers)
• Uses models to calculate whole number sums through 99	Uses models to calculate whole number sums through 99
<ul> <li>Adds two 1-digit numbers with sums to 10 in horizontal format</li> </ul>	Adds two 1-digit numbers with sums to 10 in horizontal format
<ul> <li>Adds 1-digit to multiple-digit number with no regrouping</li> <li>Adds 1-digit to multiple-digit number with regrouping</li> </ul>	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
	Adds 1-digit to multiple-digit number with regrouping
	Adds 2-digit numbers with no regrouping
	Solves real-world whole number addition problems with sums to 20 (result unknown)
	Subtracts two 1-digit numbers horizontally
	Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)
	Subtracts two 1-digit numbers vertically
	Subtracts a 2-digit number from a 2-digit number, with no regrouping
	Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12
	Tells time to the nearest hour
	Tells time to the nearest half hour
Extend and Use Properties	Extend and Use Properties
<ul> <li>Identifies whole numbers under 100 using base-10 blocks</li> </ul>	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 the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa)
	Counts 1 to 10 objects
	Identifies missing numbers in a series through 100
	Recognizes and generates equivalent forms for the same number using physical models for whole numbers 11 to 20
	Orders whole numbers less than 10
	Writes whole numbers in standard and expanded form through the tens
New Vocabulary: None	New Vocabulary: None
New Signs and Symbols: None	New Signs and Symbols: + addition, = is equal to, x multiplication, - subtraction, : used with time, variable

## **Explanatory Notes**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 161 - 170 Statements Last Updated: Aug 4, 2014

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>Uses models to construct whole number addition facts with addends through 10</li> </ul>	Uses a number line to construct addition facts with sums through 20 (whole numbers)	Uses a number line to construct addition facts with sums through 20 (whole numbers)
<ul> <li>Uses models to calculate whole number sums through 99</li> </ul>	Uses models to calculate whole number sums through 99	Uses models to calculate whole number sums through 999
<ul> <li>Adds two 1-digit numbers with sums to 10 in horizontal format</li> <li>Adds 1-digit to multiple-digit number with no regrouping</li> </ul>	<ul> <li>Adds two 1-digit numbers with sums to 10 in horizontal format</li> <li>Adds two 1-digit numbers with sums between 10 and 19 in horizontal</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 regrouping	format	Adds two or three 2-digit number with regrouping
Add A digit to maniple digit number with regreaping	Adds two 1-digit numbers with sums between 10 and 19 in vertical	Adds 1- and/or 2-digit numbers with sums under 100
	format	Adds 3-digit numbers with no regrouping
	Adds multiple 1-digit numbers	Adds 3-digit numbers, with regrouping, with sums under 1000
	<ul> <li>Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens)</li> </ul>	Solves real-world whole number addition problems with sums to 20 (result unknown)
	Adds 1-digit to multiple-digit number with no regrouping     Adds 1-digit to multiple-digit number with regrouping	Solves real-world whole number addition problems with sums to 20 (start unknown)
	Adds 2-digit numbers with no regrouping  Calves real world whole symbols addition are blosses with a ways to 20.	Solves real-world whole number addition problems with sums to 100 (result unknown)
	Solves real-world whole number addition problems with sums to 20 (result unknown)	Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)
	Subtracts two 1-digit numbers horizontally	Subtracts a 1-digit number from a 2-digit number with no regrouping,
	<ul> <li>Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)</li> </ul>	vertically
	Subtracts two 1-digit numbers vertically	Subtracts a 2-digit number from a 2-digit number, with no regrouping
	Subtracts a 2-digit number from a 2-digit number, with no regrouping	Subtracts 2- and/or 3-digit numbers with no regrouping
	<ul> <li>Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12</li> </ul>	<ul> <li>Solves real-world whole number problems involving subtraction with numbers under 20</li> </ul>
	• Tells time to the nearest hour	<ul> <li>Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12</li> </ul>
	Tells time to the nearest half hour	Multiplies basic facts to 10 x 10 vertically
		<ul> <li>Adds 1-digit numbers with sums to 18 (with parentheses)</li> </ul>
		Recognizes addition and subtraction fact families through 18
		Identifies the value of a collection of coins to \$1.00 (with pictures of coins)
		<ul> <li>Identifies the value of a collection of coins and bills to \$10.00 by counting on (with picture of money)</li> </ul>
		Tells time to the nearest hour
		Tells time to the nearest half hour
		Tells time to the nearest 5 minutes
		Connects money with place value

### **Explanatory Notes**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 161 - 170 Statements Last Updated: Aug 4, 2014

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
		Determines the operation needed from a simple problem
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
• Identifies whole numbers under 100 using base-10 blocks	Identifies whole numbers under 100 using base-10 blocks	Identifies whole numbers 100 - 999 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 the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa)	Identifies the numerical and written name for whole numbers 21 to 100 (e.g., 62 is sixty-two, and vice versa)
	Counts 1 to 10 objects     Identifies missing numbers in a series through 100	Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa)
	Recognizes and generates equivalent forms for the same number	Identifies missing numbers in a series through 100
	using physical models for whole numbers 11 to 20	Counts by 2's to 100
	Orders whole numbers less than 10	Counts backwards from a given number (given number greater than
	Writes whole numbers in standard and expanded form through the tens	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)
		Compares whole numbers through 999
		Counts objects that are grouped into tens and ones
		Identifies the place value and value of each digit in whole numbers through the tens place
		Represents 1/2 with a diagram or model
		Represents 1/4 with a diagram or model
		Identifies one-half from a region or set
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., ¢ cent sign, \$ dollar sign, p.m.,   tally mark

### **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.

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 171 - 180 Statements Last Updated: Aug 4, 2014

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
<ul> <li>Uses a number line to construct addition facts with sums through 20 (whole numbers)</li> </ul>	Uses a number line to construct addition facts with sums through 20 (whole numbers)	Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only)
<ul> <li>Uses models to calculate whole number sums through 99</li> </ul>	Uses models to calculate whole number sums through 999	Instantly recalls basic addition facts with sums to 18 in a table
<ul> <li>Adds two 1-digit numbers with sums to 10 in horizontal format</li> </ul>	Uses strategies for addition facts (e.g., compatible numbers, counting)	Adds two or three 2-digit number with regrouping
<ul> <li>Adds two 1-digit numbers with sums between 10 and 19 in horizontal</li> </ul>	on, doubles, neighbors, making tens)	Adds 3-digit numbers, with regrouping, with sums under 1000
format	Adds two or three 2-digit number with regrouping	Performs mental computation with 2, 3, or 4 addends
<ul> <li>Adds two 1-digit numbers with sums between 10 and 19 in vertical format</li> </ul>	Adds 1- and/or 2-digit numbers with sums under 100     Adds 3-digit numbers with no regrouping	Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000
<ul> <li>Adds multiple 1-digit numbers</li> </ul>	Adds 3-digit numbers, with regrouping, with sums under 1000	Adds multiple-digit numbers, with regrouping, with sums over 1000
<ul> <li>Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens)</li> </ul>	Solves real-world whole number addition problems with sums to 20 (result unknown)	Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given
Adds 1-digit to multiple-digit number with no regrouping     Adds 1-digit to multiple-digit number with regrouping	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)
Adds 2-digit numbers with no regrouping	• Solves real-world whole number addition problems with sums to 100	Uses models to calculate differences through 100 (whole numbers)
Solves real-world whole number addition problems with sums to 20	(result unknown)	Instantly recalls basic subtraction facts with minuend less than 10
(result unknown)	Subtracts a 1-digit number from a 2-digit number that is less than 20	Subtracts a 2-digit number from a 2-digit number, with regrouping
<ul> <li>Subtracts two 1-digit numbers horizontally</li> </ul>	(whole numbers only)	Uses strategies for sums and differences with 2-digit numbers (e.g.,
<ul> <li>Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)</li> </ul>	Subtracts a 1-digit number from a 2-digit number with no regrouping, vertically	decomposing, compatible, compensation, partial sums, counting on)  • Subtracts 2- and/or 3-digit numbers with no regrouping
Subtracts two 1-digit numbers vertically	Subtracts a 2-digit number from a 2-digit number, with no regrouping	Subtracts 3- or 4-digit numbers with regrouping
Subtracts a 2-digit number from a 2-digit number, with no regrouping	Subtracts 2- and/or 3-digit numbers with no regrouping	Performs mental subtraction with numbers under 1000
<ul> <li>Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12</li> </ul>	Solves real-world whole number problems involving subtraction with numbers under 20	Subtracts multiple-digit numbers with no regrouping
Tells time to the nearest hour	Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12	Solves real-world whole number problems involving subtraction with numbers under 20
Tells time to the nearest half hour	Multiplies basic facts to 10 x 10 vertically	Solves real-world whole number problems involving subtraction with numbers 100 and under
	Adds 1-digit numbers with sums to 18 (with parentheses)	Solves problems using the inverse relationship between addition and
	Recognizes addition and subtraction fact families through 18	subtraction
	Identifies the value of a collection of coins to \$1.00 (with pictures of coins)	Uses counting by multiples for multiplication
	Identifies the value of a collection of coins and bills to \$10.00 by	<ul> <li>Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12</li> </ul>
	counting on (with picture of money)	Multiplies basic facts to 10 x 10 vertically
	• Tells time to the nearest hour	Multiplies a 2-digit number by a 1-digit number with regrouping
	• Tells time to the nearest half hour	Multiplies a 2-digit number by a 2-digit number with no regrouping
	• Tells time to the nearest 5 minutes	Solves word problems involving basic whole number multiplication
	Connects money with place value	facts to 10 x 10

### **Explanatory Notes**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 171 - 180 Statements Last Updated: Aug 4, 2014

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
	Determines the operation needed from a simple problem	Uses manipulatives to divide a small set of objects into groups of equipaize
		Uses sharing for division
		<ul> <li>Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction)</li> </ul>
		Models multiplication and division algorithms using arrays (whole numbers)
		• Instantly recalls division facts with dividend and divisors less than 10
		Solves real-world whole number problems involving addition and subtraction
		Recognizes addition and subtraction fact families through 18
		Demonstrates an understanding of the inverse relationship between multiplication and division
		Adds decimals to the hundredths place (same number of digits)
		Identifies the value of a collection of coins to \$1.00 (without picture o coins)
		Adds money with regrouping
		<ul> <li>Identifies the value of a collection of coins and bills to \$10.00 by counting on (with picture of money)</li> </ul>
		Finds equivalent combinations of coins with the same value
		Combines a collection of coins and identifies the correct notation
		Makes change to \$1.00 by counting on or subtracting
		<ul> <li>Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only)</li> </ul>
		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
xtend 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		Identifies the numeral and written name for whole numbers 101 to 99 (e.g., 342 is three hundred forty-two, and vice versa)
(e.g., 15 is fifteen, and vice versa)	(e.g., 62 is sixty-two, and vice versa)	<ul> <li>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 vers</li> </ul>

### **Explanatory Note**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 171 - 180 Statements Last Updated: Aug 4, 2014

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>Counts 1 to 10 objects</li> <li>Identifies missing numbers in a series through 100</li> </ul>	Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa)	Identifies the numeral and written name for whole numbers 10,000 to 100,000
Recognizes and generates equivalent forms for the same number	Identifies missing numbers in a series through 100	Compares whole numbers through 999
using physical models for whole numbers 11 to 20	Counts by 2's to 100	Compares whole numbers through 9999
Orders whole numbers less than 10	Counts backwards from a given number (given number greater than	Rounds 2- and 3- digit whole numbers to the nearest ten
• Writes whole numbers in standard and expanded form through the tens	10)	Rounds 3-digit whole numbers to the nearest hundred
	Recognizes and generates equivalent forms for the same number using physical models for whole numbers 11 to 20	Counts objects that are grouped into tens and ones
	Compares sets of objects and identifies which is equal to, more than,	• Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)
	or less than the other (1 to 10 objects)  • Compares whole numbers through 999	Identifies the place value and value of each digit in whole numbers through the tens place
	Counts objects that are grouped into tens and ones     Identifies the place value and value of each digit in whole numbers	Identifies the place value and value of each digit in whole numbers through the hundreds place
	through the tens place	Identifies the place value and value of each digit in whole numbers
	Represents 1/2 with a diagram or model	through the thousands
	Represents 1/4 with a diagram or model     Identifies one-half from a region or set	Identifies the place value and value of each digit in whole numbers through the hundred thousands
	Tachunica cha han ham a region of cat	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
		Compares and orders decimals to the hundredths place (same number of digits after decimal)
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**

Goal: The Real and Complex Number Systems

181 - 190 RIT Score Range: Statements Last Updated: Aug 4, 2014

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
<ul> <li>Completes a growing arithmetic pattern by naming missing members</li> <li>Computes simple conversions among units of time (minutes in an hour,</li> </ul>	Completes arithmetic growth patterns in number tables by identifying the missing elements	• Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%)
half hour, quarter hour)	Computes simple conversions among units of time (days, weeks)	Converts between cups and pints
		Converts between cups, pints, and quarts
		Computes simple conversions among units of time (minutes, hours)
		Solves simple problems involving miles/kilometers per hour
		Writes the missing number in a proportion using basic facts
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Uses a number line to construct addition facts with sums through 20 (whole numbers)</li> </ul>	Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only)	Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers
• Uses models to calculate whole number sums through 999	Instantly recalls basic addition facts with sums to 18 in a table	only)
Uses strategies for addition facts (e.g., compatible numbers, counting an doubles, paighbors, making tops)	Adds two or three 2-digit number with regrouping	Uses rounding to estimate answers to addition and subtraction problems (whole numbers only)
on, doubles, neighbors, making tens)  • Adds two or three 2-digit number with regrouping	Adds 3-digit numbers, with regrouping, with sums under 1000	Adds two 3- and/or 4-digit numbers, with regrouping, with sums over
Adds 1- and/or 2-digit numbers with sums under 100	Performs mental computation with 2, 3, or 4 addends	1000
Adds 3-digit numbers with no regrouping	Adds two 3- and/or 4-digit numbers, with regrouping, with sums over     1000	Adds multiple-digit numbers, with regrouping, with sums over 1000
Adds 3-digit numbers, with regrouping, with sums under 1000	Adds multiple-digit numbers, with regrouping, with sums over 1000	Adds multiple-digit numbers 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 (result unknown) - with extraneous information given	Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given
Solves real-world whole number addition problems with sums to 20 (start unknown)	Solves real-world whole number addition problems with sums to 100 (result unknown)	Solves real-world whole number addition problems with sums to 20 (change unknown)
Solves real-world whole number addition problems with sums to 100	Uses models to calculate differences through 100 (whole numbers)	Solves whole number addition word problems with sums over 1000
(result unknown)	Instantly recalls basic subtraction facts with minuend less than 10	Subtracts 1-digit number from a 2-digit number with regrouping
• Subtracts a 1-digit number from a 2-digit number that is less than 20	Subtracts a 2-digit number from a 2-digit number, with regrouping	Subtracts a 2-digit number from a 2-digit number, with regrouping
<ul><li>(whole numbers only)</li><li>Subtracts a 1-digit number from a 2-digit number with no regrouping,</li></ul>	Uses strategies for sums and differences with 2-digit numbers (e.g.,	Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)
vertically	decomposing, compatible, compensation, partial sums, counting on)	Subtracts a 2-digit number from a 3-digit number with a single
Subtracts a 2-digit number from a 2-digit number, with no regrouping	Subtracts 2- and/or 3-digit numbers with no regrouping     Subtracts 3- or 4-digit numbers with regrouping	regrouping
Subtracts 2- and/or 3-digit numbers with no regrouping	Performs mental subtraction with numbers under 1000	Subtracts 3- or 4-digit numbers with regrouping
Solves real-world whole number problems involving subtraction with	Subtracts multiple-digit numbers with no regrouping	Performs mental subtraction with numbers under 1000
numbers under 20	Solves real-world whole number problems involving subtraction with	Subtracts multiple-digit numbers with no regrouping
<ul> <li>Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12</li> </ul>	numbers under 20	Solves real-world whole number problems involving subtraction with numbers 100 and under
Multiplies basic facts to 10 x 10 vertically	Solves real-world whole number problems involving subtraction with numbers 100 and under	Solves problems using the inverse relationship between addition and subtraction
Adds 1-digit numbers with sums to 18 (with parentheses)	Solves problems using the inverse relationship between addition and	Instantly recalls basic multiplication facts where one factor is 6-12 and
Recognizes addition and subtraction fact families through 18	subtraction	the other factor is 0-12
<ul> <li>Identifies the value of a collection of coins to \$1.00 (with pictures of coins)</li> </ul>	Uses counting by multiples for multiplication	Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping
• Identifies the value of a collection of coins and bills to \$10.00 by	• Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12	Multiplies a 2-digit number by a 1-digit number with regrouping
counting on (with picture of money)	Multiplies basic facts to 10 x 10 vertically	Multiplies a 3- or 4-digit number by a 1-digit number

### **Explanatory Notes**

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## **Mathematics**

Goal: The Real and Complex Number Systems

181 - 190 RIT Score Range: Statements Last Updated: Aug 4, 2014

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
Tells time to the nearest hour	Multiplies a 2-digit number by a 1-digit number with regrouping	Multiplies a 2-digit number by a 2-digit number with no regrouping
Tells time to the nearest half hour	Multiplies a 2-digit number by a 2-digit number with no regrouping	Performs mental computation with multiplication
<ul> <li>Tells time to the nearest 5 minutes</li> <li>Connects money with place value</li> </ul>	Solves word problems involving basic whole number multiplication facts to 10 x 10	Solves word problems involving basic whole number multiplication facts to 10 x 10
Determines the operation needed from a simple problem	Uses manipulatives to divide a small set of objects into groups of equal size	Solves word problems involving whole number multiplication with numbers greater than 10 x 10
	Uses sharing for division	Uses manipulatives to divide a small set of objects into groups of equal
	Models whole number multiplication and division algorithms (e.g.,	size
	shows multiplication as repeated addition and division as repeated subtraction)	Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction)
	Models multiplication and division algorithms using arrays (whole numbers)	Instantly recalls division facts with dividend and divisors less than 10
	•	Instantly recalls division facts with dividend and divisors less than 13
	<ul> <li>Instantly recalls division facts with dividend and divisors less than 10</li> <li>Solves real-world whole number problems involving addition and</li> </ul>	Divides a 2-digit number by a 1-digit number with no remainder
	subtraction	Solves word problems with whole number division facts with dividend
	Recognizes addition and subtraction fact families through 18	and divisors less than 11
	<ul> <li>Demonstrates an understanding of the inverse relationship between multiplication and division</li> </ul>	Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)
	Adds decimals to the hundredths place (same number of digits)	Uses models to add and subtract fractions and connect the actions to
	• Identifies the value of a collection of coins to \$1.00 (without picture of	algorithms
	coins)	Subtracts fractions with like denominators without reducing
	Adds money with regrouping     Identifies the value of a collection of coins and bills to \$10.00 by	<ul> <li>Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators</li> </ul>
	counting on (with picture of money)	Solves real-world 1-step problems involving multiplication or division of
	• Finds equivalent combinations of coins with the same value	a whole number by a fraction
	Combines a collection of coins and identifies the correct notation	Adds decimals to the hundredths place (same number of digits)
	Makes change to \$1.00 by counting on or subtracting	Adds decimals to the hundredths place in vertical format (not same number of digits)
	<ul> <li>Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only)</li> </ul>	Adds decimals to the thousandths place vertically with and without regrouping
	Computes 1 operation on addition or subtraction real-world problems involving money up to \$5.00	Identifies the value of a collection of coins to \$1.00 (without picture of coins)
	Identifies the correct time, given the words, and vice versa	Adds money with regrouping
	Determines elapsed clock time	Identifies the value of a collection of coins and bills to \$10.00 by
	Determines elapsed time under 1 hour or to the hour	counting on (without picture of money)
	Determines elapsed time involving whole hours, whole days, whole years	Finds equivalent combinations of coins with the same value
	Tells time to the nearest 5 minutes	Subtracts decimals to the hundredths place (same number of digits) with regrouping
	Determines the operation needed from a simple problem	
	Identifies the number that is 1 less than a given number	Subtracts decimals to the thousandths place, vertically, with and without regrouping
	Distinguishes between odd and even numbers	Makes change to \$1.00 by counting on or subtracting
	1	]

### **Explanatory Notes**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 181 - 190 Statements Last Updated: Aug 4, 2014

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
		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)
		Multiplies a decimal by whole number
		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
		Determines elapsed time involving whole hours, whole days, whole years
		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
<ul> <li>Identifies whole numbers 100 - 999 using base-10 blocks</li> <li>Identifies the numerical and written name for whole numbers 21 to 100</li> </ul>	<ul> <li>Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa)</li> </ul>	Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)
(e.g., 62 is sixty-two, and vice versa)	• Identifies the numeral and written name for whole numbers to 1000 to	Identifies whole numbers over 999 using base-10 blocks
Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa)	9999 (e.g., 3456 is three thousand, four hundred fifty-six, and vice versa)  • Identifies the numeral and written name for whole numbers 10,000 to	Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place
<ul> <li>Identifies missing numbers in a series through 100</li> <li>Counts by 2's to 100</li> </ul>	100,000 • Compares whole numbers through 999	Identifies the numeral and written name for whole numbers 10,000 to 100,000
• Counts backwards from a given number (given number greater than 10)	Compares whole numbers through 9999	Identifies the numeral and written name for whole numbers over
Recognizes and generates equivalent forms for the same number	• Rounds 2- and 3- digit whole numbers to the nearest ten	100,000
using physical models for whole numbers 11 to 20	Rounds 3-digit whole numbers to the nearest hundred	<ul> <li>Compares whole numbers to 100, using the symbols for 'less than', 'equal to', or 'greater than' (&lt;, =, &gt;)</li> </ul>
• Compares sets of objects and identifies which is equal to, more than,	Counts objects that are grouped into tens and ones	<ul> <li>Compares whole numbers through the thousands using the symbols </li> </ul>
or less than the other (1 to 10 objects)	• Identifies whole numbers under 100 given place value terms (e.g., 3	>, or =
Compares whole numbers through 999	tens and 4 ones = 34)	Rounds 2- and 3- digit whole numbers to the nearest ten
Counts objects that are grouped into tens and ones	Identifies the place value and value of each digit in whole numbers through the tens place	Rounds 3-digit whole numbers to the nearest hundred

### **Explanatory Notes**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 181 - 190 Statements Last Updated: Aug 4, 2014

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
<ul> <li>Identifies the place value and value of each digit in whole numbers through the tens place</li> </ul>	Identifies the place value and value of each digit in whole numbers through the hundreds place	• Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)
<ul><li>Represents 1/2 with a diagram or model</li><li>Represents 1/4 with a diagram or model</li></ul>	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 thousands
Identifies one-half from a region or set	Identifies the place value and value of each digit in whole numbers through the hundred 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	Writes whole numbers in standard and expanded form through the hundreds
	Identifies 1/2 from a region or set	Writes whole numbers in standard and expanded form through the thousands
	Identifies one-half from a region or set	Represents 1/3 with a diagram or model
	• Identifies 1/4 from a region or set • Identifies 2/4, 3/4, or 4/4 from a region or set	Represents fractions with denominators other than 2, 3, 4 with a diagram or model
	Identifies 2/3 or 3/3 from a region or set	Identifies 1/4 from a region or set
	Identifies tenths from a region or set	Identifies 1/3 from a region or set
	Identifies eighths from a region or set	Identifies 2/3 or 3/3 from a region or set
	• Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a	Identifies tenths from a region or set
	region or set  • Compares and orders decimals to the hundredths place (same number	Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set
	of digits after decimal)	Identifies equivalent fractions using visual representations
		Matches numeric and visual representation of equivalent fractions
		Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)
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,	hundred million, miles per hour, prime number, quintillion, standard numeral, trillion
	what time	New Signs and Symbols: () ordered pair, °F degrees Fahrenheit, g gram,
	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** 

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\* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 191 - 200 Statements Last Updated: Aug 4, 2014

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
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
• Completes arithmetic growth patterns in number tables by identifying the missing elements	• Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%)	Converts between inches and feet     Solves simple problems involving measurement of length
Computes simple conversions among units of time (days, weeks)	Converts between cups and pints Converts between cups, pints, and quarts Computes simple conversions among units of time (minutes, hours) Solves simple problems involving miles/kilometers per hour Writes the missing number in a proportion using basic facts	<ul> <li>Solves simple problems involving measurement of length</li> <li>Estimates simple conversions involving length between the customary and metric system</li> <li>Converts between cups and pints</li> <li>Converts between cups, pints, and quarts</li> <li>Computes simple conversions among units of time (hours, days)</li> <li>Computes more difficult conversions among units of time</li> <li>Applies dimensional analysis to simple real-world problems (time)</li> <li>Solves simple problems involving miles per gallon</li> <li>Solves simple problems involving miles/kilometers per hour</li> <li>Determines unit price</li> <li>Writes the missing number in a proportion using basic facts</li> </ul>
		Identifies the percent represented in a 2-D region
Perform Operations	Perform Operations	Perform Operations
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 Performs mental computation with 2, 3, or 4 addends Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers, with regrouping, with sums to 20 (result unknown) - with extraneous information given Solves real-world whole number addition problems with sums to 100 (result unknown) 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 Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)	Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only)  Uses rounding to estimate answers to addition and subtraction problems (whole numbers only)  Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000  Adds multiple-digit numbers, with regrouping, with sums over 1000  Adds multiple-digit numbers with sums under 1000  Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given  Solves real-world whole number addition problems with sums to 20 (change unknown)  Solves whole number addition word problems with sums over 1000  Subtracts 1-digit number from a 2-digit number with regrouping  Subtracts a 2-digit number from a 2-digit number, with regrouping  Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)	<ul> <li>Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only)</li> <li>Uses rounding to estimate answers to addition and subtraction problems (whole numbers only)</li> <li>Adds multiple-digit numbers, with regrouping, with sums over 1000</li> <li>Adds multiple-digit numbers with sums under 1000</li> <li>Performs mental computation with more than 4 addends</li> <li>Subtracts 3- or 4-digit numbers with regrouping</li> <li>Subtracts numbers with 5 digits or more with regrouping</li> <li>Solves real-world whole number problems involving subtraction with numbers 100 and under (analysis)</li> <li>Solves problems using the inverse relationship between addition and subtraction</li> <li>Instantly recalls basic multiplication and division facts in a table</li> <li>Multiplies a 2-digit number by a 1-digit number</li> <li>Multiplies multiple 1-digit numbers</li> <li>Multiplies a 2-digit number by a 2-digit number with regrouping</li> </ul>
Subtracts 3- or 4-digit numbers with regrouping     Performs mental subtraction with numbers under 1000	regrouping  • Subtracts 3- or 4-digit numbers with regrouping  • Performs mental subtraction with numbers under 1000	Multiplies a 3-digit number by a 2-digit number with regrouping     Performs mental computation with multiplication
Subtracts multiple-digit numbers with no regrouping     Solves real-world whole number problems involving subtraction with numbers under 20	Subtracts multiple-digit numbers with no regrouping     Solves real-world whole number problems involving subtraction with numbers 100 and under	<ul> <li>Multiplies a 2- or 3-digit number by multiples of 10 or 100</li> <li>Multiplies a 3-digit number by a 3-digit number</li> </ul>

### **Explanatory Notes**

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## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 191 - 200 Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*)	Skills and Concepts to Develop (50% Probability*)	Skills and Concepts to Introduce (27% Probability*)
181 - 190	191 - 200	201 - 210
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Solves real-world whole number problems involving subtraction with numbers 100 and under</li> </ul>	<ul> <li>Solves problems using the inverse relationship between addition and subtraction</li> </ul>	Solves word problems involving whole number multiplication with numbers greater than 10 x 10
<ul> <li>Solves problems using the inverse relationship between addition and subtraction</li> </ul>	• Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12	Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)
Uses counting by multiples for multiplication	Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping	Instantly recalls division facts with dividend and divisors less than 13
• Instantly recalls basic multiplication facts where one factor is 6-12 and	Multiplies a 2-digit number by a 1-digit number with regrouping	Divides a 2-digit number by a 1-digit number with no remainder
the other factor is 0-12	Multiplies a 3- or 4-digit number by a 1-digit number	• Divides a 2-digit number or a 3-digit number by a 1-digit number with a
<ul> <li>Multiplies basic facts to 10 x 10 vertically</li> </ul>	Multiplies a 2-digit number by a 2-digit number with no regrouping	remainder
<ul> <li>Multiplies a 2-digit number by a 1-digit number with regrouping</li> </ul>	Performs mental computation with multiplication	Performs mental computation with division
<ul> <li>Multiplies a 2-digit number by a 2-digit number with no regrouping</li> </ul>	Solves word problems involving basic whole number multiplication	Divides a 3-digit number by a 1-digit number with no remainder
Solves word problems involving basic whole number multiplication	facts to 10 x 10	Divides a 4-digit number by a 1-digit number with no remainder
facts to 10 x 10	Solves word problems involving whole number multiplication with	Divides a 3-digit number by a multiple of 10
<ul> <li>Uses manipulatives to divide a small set of objects into groups of equal size</li> </ul>	numbers greater than 10 x 10	Divides a 4-digit number by a 2-digit number
Uses sharing for division	Uses manipulatives to divide a small set of objects into groups of equal size	Solves word problems with whole number division facts with dividend and divisors less than 11
<ul> <li>Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction)</li> </ul>	<ul> <li>Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction)</li> </ul>	Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)
Models multiplication and division algorithms using arrays (whole	Instantly recalls division facts with dividend and divisors less than 10	Solves whole number word problems with division over 10 x 10
numbers)	Instantly recalls division facts with dividend and divisors less than 13	Determines the remainder in a real-world problem (whole numbers)
• Instantly recalls division facts with dividend and divisors less than 10	Divides a 2-digit number by a 1-digit number with no remainder	Uses division for multiple-step real-world problems (whole numbers)
<ul> <li>Solves real-world whole number problems involving addition and subtraction</li> </ul>	Solves word problems with whole number division facts with dividend and divisors less than 11	Solves real-world problems involving 2-step multiple operations, whole numbers only
Recognizes addition and subtraction fact families through 18	Solves simple word problems involving whole number division with	Adds fractions with like denominators without reducing
Demonstrates an understanding of the inverse relationship between	remainder (e.g., 1-step, 1-digit divisor)	Adds whole numbers and fractions
multiplication and division	Uses models to add and subtract fractions and connect the actions to	Uses models to add and subtract fractions and connect the actions to
<ul> <li>Adds decimals to the hundredths place (same number of digits)</li> </ul>	algorithms	algorithms
• Identifies the value of a collection of coins to \$1.00 (without picture of	Subtracts fractions with like denominators without reducing	Subtracts fractions with like denominators without reducing
coins)	Solves real-world 1-step problems involving addition and subtraction of  fractions with like decreases.	Subtracts mixed fractions with like denominators with no regrouping
Adds money with regrouping	fractions with like denominators	<ul> <li>Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators</li> </ul>
<ul> <li>Identifies the value of a collection of coins and bills to \$10.00 by counting on (with picture of money)</li> </ul>	<ul> <li>Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction</li> </ul>	Multiplies a fraction by a fraction without reducing to simplest form
<ul> <li>Finds equivalent combinations of coins with the same value</li> </ul>	Adds decimals to the hundredths place (same number of digits)	(simple problem)
Combines a collection of coins and identifies the correct notation	Adds decimals to the hundredths place in vertical format (not same	Adds decimals to the thousandths place horizontally with and without regrouping
<ul> <li>Makes change to \$1.00 by counting on or subtracting</li> </ul>	number of digits)	Subtracts decimals to the hundredths place (same number of digits)
<ul> <li>Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only)</li> </ul>	Adds decimals to the thousandths place vertically with and without regrouping	with regrouping
Computes 1 operation on addition or subtraction real-world problems involving money up to \$5.00	<ul> <li>Identifies the value of a collection of coins to \$1.00 (without picture of coins)</li> </ul>	Subtracts decimals to the thousandths place, vertically, with and without regrouping
Identifies the correct time, given the words, and vice versa	Adds money with regrouping	Subtracts decimals through the hundred-thousandths place, vertically
Determines elapsed clock time	<ul> <li>Identifies the value of a collection of coins and bills to \$10.00 by counting on (without picture of money)</li> </ul>	Computes the value of multiple bills and coins (addition/subtraction only)

### **Explanatory Notes**

\* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 191 - 200 Statements Last Updated: Aug 4, 2014

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
Determines elapsed time under 1 hour or to the hour	Finds equivalent combinations of coins with the same value	Multiplies a decimal by whole number
Determines elapsed time involving whole hours, whole days, whole	Subtracts decimals to the hundredths place (same number of digits)	Divides decimal by a whole number
years  Tells time to the nearest 5 minutes	with regrouping  • Subtracts decimals to the thousandths place, vertically, with and	Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division)
<ul> <li>Determines the operation needed from a simple problem</li> <li>Identifies the number that is 1 less than a given number</li> </ul>	without regrouping  • Makes change to \$1.00 by counting on or subtracting	Computes addition and subtraction on multiple-step real-world problems involving money
Distinguishes between odd and even numbers	Solves real-world problems involving decimals (not money) using addition and subtraction	Computes money problems with multiple operations (addition/subtraction only)
	Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only)	Computes addition, subtraction, multiplication, and division on multiple step, real-world problems involving money
	Computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only)	Solves real-world problems involving addition and subtraction of integers
	Multiplies a decimal by whole number	Solves problems involving measurement of time
	Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division)	Solves simple problems involving elapsed time, with the conversion of hours
	Computes 1 operation on real-world problems involving money over	Solves problems using tables
	\$5.00 (multiplication/division)	Writes a terminating decimal as a fraction or mixed number
	Computes basic operations with units of weight/mass	• Expresses the equivalent form of a fraction, decimal, and/or percent
	Identifies the correct time, given the words, and vice versa	(simple fraction)
	Determines elapsed clock time	
	Tells time to the nearest quarter hour	
	Determines elapsed time involving whole hours, whole days, whole years	
	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
• Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa)	Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)	Graphs ordered pairs in the first quadrant     Determines and names locations in the first quadrant on a labeled grid
• Identifies the numeral and written name for whole numbers to 1000 to	Identifies whole numbers over 999 using base-10 blocks	or coordinate system (e.g., map or graph)
9999 (e.g., 3456 is three thousand, four hundred fifty-six, and vice versa)  Identifies the numeral and written name for whole numbers 10,000 to	Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place	Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system
100,000 • Compares whole numbers through 999	Identifies the numeral and written name for whole numbers 10,000 to 100,000	Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks)
Compares whole numbers through 9999	Identifies the numeral and written name for whole numbers over	Locates the origin on a coordinate grid
Rounds 2- and 3- digit whole numbers to the nearest ten	100,000	Identifies whole numbers over 999 using base-10 blocks

### **Explanatory Notes**

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## **Mathematics**

Goal: The Real and Complex Number Systems

191 - 200 RIT Score Range: Statements Last Updated: Aug 4, 2014

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>Rounds 3-digit whole numbers to the nearest hundred</li> <li>Counts objects that are grouped into tens and ones</li> </ul>	Compares whole numbers to 100, using the symbols for 'less than', 'equal to', or 'greater than' (<, =, >)	Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place
<ul> <li>Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)</li> </ul>	• Compares whole numbers through the thousands using the symbols <, >, or =	Identifies the numeral and written name for whole numbers over 100,000
Identifies the place value and value of each digit in whole numbers through the tens place	Rounds 2- and 3- digit whole numbers to the nearest ten     Rounds 3-digit whole numbers to the nearest hundred	Compares whole numbers through the billions using the symbols <, >,     or =
Identifies the place value and value of each digit in whole numbers through the hundreds place	Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34)	Orders whole numbers a million or greater using < or > symbols     Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten
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 thousands	Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred
Identifies the place value and value of each digit in whole numbers through the hundred thousands	Identifies the place value and value of each digit in whole numbers through the hundred thousands	Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand     Rounds whole numbers to the nearest hundred thousand
Represents 3/4 with a diagram or model	Writes whole numbers in standard and expanded form through the hundreds	Rounds wholes numbers to the nearest billion     Explains the rules for rounding
<ul><li>Identifies equal parts by using models</li><li>Identifies 1/2 from a region or set</li></ul>	Writes whole numbers in standard and expanded form through the thousands	Writes equivalent forms of whole numbers using place value (e.g., 54 = 4 tens and 14 ones)
<ul> <li>Identifies one-half from a region or set</li> <li>Identifies 1/4 from a region or set</li> </ul>	Represents 1/3 with a diagram or model	Identifies the place value and value of each digit in whole numbers through the billions
• Identifies 2/4, 3/4, or 4/4 from a region or set	Represents fractions with denominators other than 2, 3, 4 with a diagram or model	Writes whole numbers in standard and expanded form through the hundred thousands
<ul> <li>Identifies 2/3 or 3/3 from a region or set</li> <li>Identifies tenths from a region or set</li> </ul>	Identifies 1/4 from a region or set     Identifies 1/3 from a region or set	Applies base ten place value concepts with whole numbers to solve
• Identifies eighths from a region or set	• Identifies 2/3 or 3/3 from a region or set	problems  • Writes whole numbers using place value terms and vice versa
<ul> <li>Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set</li> </ul>	Identifies tenths from a region or set	Identifies halves of a region using nonadjacent parts
Compares and orders decimals to the hundredths place (same number)	Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set	Identifies equivalent fractions using visual representations
of digits after decimal)	Identifies equivalent fractions using visual representations	• Expresses 1 in many different ways (e.g., 3/3, 4/4)
	Matches numeric and visual representation of equivalent fractions	Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters)
	Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)	Writes mixed numbers as improper fractions and improper fractions as mixed numbers
		Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10)
		Orders fractions on a number line
		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
		Rounds decimals to the nearest whole number
		Compares integers on a number line

### **Explanatory Notes**

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## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 191 - 200 Statements Last Updated: Aug 4, 2014

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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,	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
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** 

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### **Mathematics**

Goal: The Real and Complex Number Systems

201 - 210 RIT Score Range: Statements Last Updated: Aug 4, 2014

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 problems involving basic percent concepts (e.g., 10%, 50%,	Converts between inches and feet	Solves problems involving equivalent fractions
100%)	Solves simple problems involving measurement of length	Solves 1-step problems involving proportions
<ul><li>Converts between cups and pints</li><li>Converts between cups, pints, and quarts</li></ul>	Estimates simple conversions involving length between the customary and metric system	• 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	Converts between inches and feet
Solves simple problems involving miles/kilometers per hour	Converts between cups, pints, and quarts	Converts between inches, feet, and yards
Writes the missing number in a proportion using basic facts	Computes simple conversions among units of time (hours, days)	Solves simple problems involving measurement of length
	Computes more difficult conversions among units of time	Converts between cups, pints, quarts, and gallons
	Applies dimensional analysis to simple real-world problems (time)	Apply dimensional analysis to simple real-world problems (capacity)
	Solves simple problems involving miles per gallon	Computes more difficult conversions among units of time
	Solves simple problems involving miles/kilometers per hour	Applies dimensional analysis to simple real-world problems (time)
	Determines unit price	Solves simple problems involving miles per gallon
	Writes the missing number in a proportion using basic facts	Determines unit price
	Identifies the percent represented in a 2-D region	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>Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only)</li> </ul>	Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only)	Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only)
Uses rounding to estimate answers to addition and subtraction problems (whole numbers only)	Uses rounding to estimate answers to addition and subtraction problems (whole numbers only)	Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole number)
Adds two 3- and/or 4-digit numbers, with regrouping, with sums over	Adds multiple-digit numbers, with regrouping, with sums over 1000	only)
1000	Adds multiple-digit numbers with sums under 1000	Uses rounding to estimate answers to real-world problems involving
<ul> <li>Adds multiple-digit numbers, with regrouping, with sums over 1000</li> </ul>	Performs mental computation with more than 4 addends	numbers 1000 or greater using multiplication and division (whole numbers only)
<ul> <li>Adds multiple-digit numbers with sums under 1000</li> <li>Solves real-world whole number addition problems with sums to 20</li> </ul>	<ul> <li>Subtracts 3- or 4-digit numbers with regrouping</li> <li>Subtracts numbers with 5 digits or more with regrouping</li> </ul>	Uses rounding to estimate answers to difficult multiplication and division problems (whole numbers only)
(result unknown) - with extraneous information given	Solves real-world whole number problems involving subtraction with	Subtracts numbers with 5 digits or more with regrouping
Solves real-world whole number addition problems with sums to 20	numbers 100 and under (analysis)	Instantly recalls basic multiplication and division facts in a table
(change unknown)	Solves problems using the inverse relationship between addition and	Multiplies a 2-digit number by a 2-digit number with regrouping
Solves whole number addition word problems with sums over 1000	subtraction	Multiplies a 3-digit number by a 2-digit number with regrouping     Multiplies a 3-digit number by a 2-digit number with regrouping
Outstand to A displace and a second of a second of the second of the second of the second sec	<ul> <li>Instantly recalls basic multiplication and division facts in a table</li> </ul>	Performs mental computation with multiplication
	,	
	Multiplies a 2-digit number by a 1-digit number with regrouping	·
<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> <li>Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on)</li> </ul>		Uses multiplication strategies to explain computation (e.g., doubles, 9 patterns, decomposing, partial products)

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## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 201 - 210 Statements Last Updated: Aug 4, 2014

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
Subtracts a 2-digit number from a 3-digit number with a single	Multiplies a 2-digit number by a 2-digit number with regrouping	Multiplies a 4- or more digit number by multiples of 100 or 1000
regrouping	Multiplies a 3-digit number by a 2-digit number with regrouping	Multiplies multiple-digit numbers
<ul> <li>Subtracts 3- or 4-digit numbers with regrouping</li> </ul>	Performs mental computation with multiplication	Models whole number multiplication and division algorithms (e.g., uses)
<ul> <li>Performs mental subtraction with numbers under 1000</li> </ul>	Multiplies a 2- or 3-digit number by multiples of 10 or 100	physical materials to show 4 groups of 3 objects)
<ul> <li>Subtracts multiple-digit numbers with no regrouping</li> </ul>	Multiplies a 3-digit number by a 3-digit number	• Divides a 2-digit number or a 3-digit number by a 1-digit number with a
<ul> <li>Solves real-world whole number problems involving subtraction with numbers 100 and under</li> </ul>	Solves word problems involving whole number multiplication with numbers greater than 10 x 10	remainder • Performs mental computation with division
Solves problems using the inverse relationship between addition and     where the state of	Models whole number multiplication and division algorithms (e.g., uses)	Divides a 4-digit number by a 1-digit number with no remainder
subtraction	physical materials to show 4 groups of 3 objects)	Divides a 3-digit number by a 2-digit number
<ul> <li>Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12</li> </ul>	Instantly recalls division facts with dividend and divisors less than 13	Divides a 4-digit number by a 2-digit number
Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping	Divides a 2-digit number by a 1-digit number with no remainder	Divides multiple-digit numbers
Multiplies a 2-digit number by a 1-digit number with regrouping	Divides a 2-digit number or a 3-digit number by a 1-digit number with a	Solves whole number word problems with division over 10 x 10
Multiplies a 3- or 4-digit number by a 1-digit number	remainder • Performs mental computation with division	Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor)
<ul> <li>Multiplies a 2-digit number by a 2-digit number with no regrouping</li> </ul>	Divides a 3-digit number by a 1-digit number with no remainder	Solves real-world problems involving 2-step multiple operations, whole
Performs mental computation with multiplication	Divides a 4-digit number by a 1-digit number with no remainder	numbers only
Solves word problems involving basic whole number multiplication     fortexts 140 x 40	Divides a 3-digit number by a multiple of 10	Solves real-world multiple-step problems involving whole numbers
facts to 10 x 10 • Solves word problems involving whole number multiplication with	Divides a 4-digit number by a 2-digit number	Demonstrates an understanding of the inverse relationship between addition and subtraction
numbers greater than 10 x 10	Solves word problems with whole number division facts with dividend and divisors less than 11	Adds fractions with like denominators without reducing
<ul> <li>Uses manipulatives to divide a small set of objects into groups of equal size</li> </ul>	Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)	Adds fractions with like denominators with reducing or converting to a mixed fraction
Models whole number multiplication and division algorithms (e.g.,	Solves whole number word problems with division over 10 x 10	Adds fractions with unlike denominators without reducing
shows multiplication as repeated addition and division as repeated subtraction)	Determines the remainder in a real-world problem (whole numbers)	Adds simple mixed fractions with unlike denominators (e.g., halves,
Instantly recalls division facts with dividend and divisors less than 10	Uses division for multiple-step real-world problems (whole numbers)	thirds, fourths, eighths)
Instantly recalls division facts with dividend and divisors less than 13	Solves real-world problems involving 2-step multiple operations, whole	Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths)
Divides a 2-digit number by a 1-digit number with no remainder	numbers only	Subtracts fractions with unlike denominators without reducing
Solves word problems with whole number division facts with dividend	Adds fractions with like denominators without reducing	Subtracts mixed fractions with like denominators with no regrouping
and divisors less than 11	Adds whole numbers and fractions	Subtracts mixed fractions with unlike denominators with no regrouping
<ul> <li>Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)</li> </ul>	Uses models to add and subtract fractions and connect the actions to algorithms	Solves real-world problems involving addition and subtraction of
Uses models to add and subtract fractions and connect the actions to	Subtracts fractions with like denominators without reducing	fractions where converting one denominator is necessary  • Uses models to multiply and divide fractions and connect the actions
algorithms	Subtracts mixed fractions with like denominators with no regrouping	to algorithms
<ul> <li>Subtracts fractions with like denominators without reducing</li> <li>Solves real-world 1-step problems involving addition and subtraction of</li> </ul>	Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators	Multiplies a fraction by a fraction where reducing to simplest form is necessary
fractions with like denominators	Multiplies a fraction by a fraction without reducing to simplest form	Multiplies a fraction by a whole number
<ul> <li>Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction</li> </ul>	(simple problem)  • Adds decimals to the thousandths place horizontally with and without	Solves 1-step real-world problems involving fractions with
Adds decimals to the hundredths place (same number of digits)	regrouping	multiplication and division     Adds decimals to the hundredths place in horizontal format (not same number of digits)
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### Explanatory Notes



## **Mathematics**

Goal: The Real and Complex Number Systems

201 - 210 RIT Score Range: Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*)	Skills and Concepts to Develop (50% Probability*)	Skills and Concepts to Introduce (27% Probability*)
191 - 200	201 - 210	211 - 220
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Adds decimals to the hundredths place in vertical format (not same number of digits)</li> </ul>	Subtracts decimals to the hundredths place (same number of digits) with regrouping	Adds decimals to the thousandths place horizontally with and without regrouping
<ul> <li>Adds decimals to the thousandths place vertically with and without regrouping</li> </ul>	Subtracts decimals to the thousandths place, vertically, with and without regrouping	Adds decimals through the hundred-thousandths place     Subtracts decimals to the thousandths place, horizontally, with and
• Identifies the value of a collection of coins to \$1.00 (without picture of	Subtracts decimals through the hundred-thousandths place, vertically	without regrouping
coins)  • Adds money with regrouping	Computes the value of multiple bills and coins (addition/subtraction only)	Computes the value of multiple bills and coins (addition/subtraction only)
Identifies the value of a collection of coins and bills to \$10.00 by     Application on (without picture of manual)	Multiplies a decimal by whole number	Analyzes and computes 1 operation on real-world problems involving      Property of SE 00 (addition/publication only)
counting on (without picture of money)	Divides decimal by a whole number	money over \$5.00 (addition/subtraction only)
<ul> <li>Finds equivalent combinations of coins with the same value</li> <li>Subtracts decimals to the hundredths place (same number of digits)</li> </ul>	Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division)	Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths)
with regrouping	Computes addition and subtraction on multiple-step real-world	Multiplies a decimal by a decimal (factors to hundredths)
Subtracts decimals to the thousandths place, vertically, with and	problems involving money	Divides decimal by a whole number
without regrouping  • Makes change to \$1.00 by counting on or subtracting	Computes money problems with multiple operations (addition/ subtraction only)	Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division)
<ul> <li>Solves real-world problems involving decimals (not money) using addition and subtraction</li> </ul>	Computes addition, subtraction, multiplication, and division on multiple- step, real-world problems involving money	Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)
<ul> <li>Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only)</li> </ul>	Solves real-world problems involving addition and subtraction of integers	Computes addition and subtraction on multiple-step real-world problems involving money
<ul> <li>Computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only)</li> </ul>	Solves problems involving measurement of time     Solves simple problems involving elapsed time, with the conversion of	Computes addition, subtraction, multiplication, and division on multiple- step, real-world problems involving money
<ul> <li>Multiplies a decimal by whole number</li> </ul>	hours	Adds integers with like signs
<ul> <li>Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division)</li> </ul>	Solves problems using tables     Writes a terminating decimal as a fraction or mixed number	Uses models to add and subtract integers and connect the actions to algorithms
<ul> <li>Computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division)</li> </ul>	Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)	Solves real-world problems involving addition and subtraction of integers
<ul> <li>Computes basic operations with units of weight/mass</li> </ul>	(*   * * * * * * * * * * * * * * * * * *	Multiplies integers with unlike signs
<ul> <li>Identifies the correct time, given the words, and vice versa</li> </ul>		Divides integers with unlike signs
Determines elapsed clock time		Divides integers with like signs
Tells time to the nearest quarter hour		Demonstrates an understanding that division by 0 is undefined
<ul> <li>Determines elapsed time involving whole hours, whole days, whole years</li> </ul>		Solves difficult problems involving elapsed time, with the conversion of hours
Tells time to the nearest 1 minute		Selects and uses the appropriate units depending on degree of
• Solves simple problems involving elapsed time, with the conversion of		accuracy required to solve problems
hours		Expresses a simple fraction as a decimal
<ul> <li>Determines the operation needed from a simple problem</li> </ul>		Writes a simple mixed fraction as a decimal and vice versa
<ul><li>Solves problems using tables</li><li>Distinguishes between odd and even numbers</li></ul>		Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10
Identifies numbers as composite		Expresses a percent as a decimal and vice versa
.ssss nambolo do composito		Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)

### **Explanatory Notes**

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\* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

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## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 201 - 210 Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*)	Skills and Concepts to Develop (50% Probability*)	Skills and Concepts to Introduce (27% Probability*)
Perform Operations	201 - 210 Perform Operations	211 - 220
Periorm 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
• Determines and names locations in the first quadrant on a labeled grid	Graphs ordered pairs in the first quadrant	Predicts the relative size of the answer when computing with 10's,  100's, 1000's.
or coordinate system (e.g., map or graph)	• Determines and names locations in the first quadrant on a labeled grid	100's, 1000's
Identifies whole numbers over 999 using base-10 blocks	or coordinate system (e.g., map or graph)	Predicts the relative size of the answer when multiplying whole numbers
<ul> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> </ul>	Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system	Determines the distance between horizontal and vertical lines in the
Identifies the numeral and written name for whole numbers 10,000 to	Determines the distance between points, following grid lines, in the	first quadrant of a rectangular coordinate system
100,000	first quadrant on a coordinate graph (as in city blocks)	Locates the origin on a coordinate grid
<ul> <li>Identifies the numeral and written name for whole numbers over</li> </ul>	Locates the origin on a coordinate grid	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred
100,000	Identifies whole numbers over 999 using base-10 blocks	Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand
• Compares whole numbers to 100, using the symbols for 'less than',	Identifies the numeral and written name for whole numbers with a zero	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand
'equal to', or 'greater than' (<, =, >)	between digits to the ten thousands place	Rounds wholes numbers to the nearest billion
<ul> <li>Compares whole numbers through the thousands using the symbols &lt;,</li> <li>or =</li> </ul>	Identifies the numeral and written name for whole numbers over     100,000	Writes whole numbers in standard and expanded form through the hundred thousands
<ul> <li>Rounds 2- and 3- digit whole numbers to the nearest ten</li> </ul>	• Compares whole numbers through the billions using the symbols <, >,	Identifies equivalent fractions using visual representations
<ul> <li>Rounds 3-digit whole numbers to the nearest hundred</li> </ul>	or =	Identifies a fractions in lowest terms from a region or set
• Identifies whole numbers under 100 given place value terms (e.g., 3	Orders whole numbers a million or greater using < or > symbols	Identifies eighths, reduced to lowest terms, from a region or set
tens and 4 ones = 34)	Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten	Determines simple equivalent fractions using multiples
<ul> <li>Identifies the place value and value of each digit in whole numbers through the thousands</li> </ul>	Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred	Converts fractions to lowest terms
Identifies the place value and value of each digit in whole numbers	• Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand	Writes mixed numbers as improper fractions and improper fractions as
through the hundred thousands	Rounds whole numbers to the nearest hundred thousand	mixed numbers
<ul> <li>Writes whole numbers in standard and expanded form through the</li> </ul>	Rounds wholes numbers to the nearest billion	Compares fractions on a number line
<ul> <li>hundreds</li> <li>Writes whole numbers in standard and expanded form through the</li> </ul>	Explains the rules for rounding     Writes equivalent forms of whole numbers using place value (e.g., 54)	Compares fractions greater than or less than a given fraction using visual representations
thousands	= 4 tens and 14 ones)	Compares fractions and mixed numbers
<ul> <li>Represents 1/3 with a diagram or model</li> </ul>	Identifies the place value and value of each digit in whole numbers	Compares fractions and mixed numbers using symbols
• Represents fractions with denominators other than 2, 3, 4 with a	through the billions	Orders fractions on a number line
diagram or model	Writes whole numbers in standard and expanded form through the hundred thousands	Explains different interpretations of fractions (e.g., parts of a whole,
• Identifies 1/4 from a region or set	Applies base ten place value concepts with whole numbers to solve	parts of a set, and division of whole numbers by whole numbers)
• Identifies 1/3 from a region or set	problems	Represents a decimal to the hundredths place (e.g., three hundredths)
• Identifies 2/3 or 3/3 from a region or set	Writes whole numbers using place value terms and vice versa	= 0.03)
Identifies tenths from a region or set	Identifies halves of a region using nonadjacent parts	Compares and orders decimals past the thousandths place
<ul> <li>Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set</li> </ul>	Identifies equivalent fractions using visual representations	Rounds decimals to the nearest whole number
Identifies equivalent fractions using visual representations	• Expresses 1 in many different ways (e.g., 3/3, 4/4)	Rounds decimals to the nearest tenth
Matches numeric and visual representation of equivalent fractions		Applies base ten place value concepts to solve problems using decimals
Explanatory Notes		

### Explanatory Note

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 201 - 210 Statements Last Updated: Aug 4, 2014

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
Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)	Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters)  Writes mixed numbers as improper fractions and improper fractions as mixed numbers  Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10)  Orders fractions on a number line  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  Rounds decimals to the nearest whole number  Compares integers on a number line	Identifies an integer from a number line     Compares two integers     Orders integers on a number line     Defines integers
New Vocabulary: billion, composite number, decade, deposit, each, grid, hundred million, miles per hour, prime number, quintillion, standard numeral, trillion  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	New Vocabulary: biggest, coordinate, coordinate point, expanded numeral, larger, miles per gallon, origin  New Signs and Symbols: ft feet, in. inch, mpg miles per gallon, - negative number	New Vocabulary: century, coin, common factor, decimal form, greatest common factor, how long, lowest term, lowest terms, reduce, triple  New Signs and Symbols: \$ dollar sign, hr hour, kg kilogram, - negative sign, ≠ not equal to, yd yard

**Explanatory Notes** 

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### **Mathematics**

Goal: The Real and Complex Number Systems

211 - 220 RIT Score Range: Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
Converts between inches and feet	Solves problems involving equivalent fractions	Solves real-world problems involving decimals (not money) using
Solves simple problems involving measurement of length	Solves 1-step problems involving proportions	multiplication
• Estimates simple conversions involving length between the customary	• Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%,	Solves problems involving ratios
and metric system	100%)	Solves 1-step problems involving proportions
Converts between cups and pints	Converts between inches and feet	• Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%,
Converts between cups, pints, and quarts	Converts between inches, feet, and yards	100%)
<ul> <li>Computes simple conversions among units of time (hours, days)</li> </ul>	Solves simple problems involving measurement of length	Calculates a percent of a number (e.g., 6% of 30)
Computes more difficult conversions among units of time	Converts between cups, pints, quarts, and gallons	Calculates a number from a percent (e.g., 4 is 9% of what)
Applies dimensional analysis to simple real-world problems (time)	Apply dimensional analysis to simple real-world problems (capacity)	Solves problems involving percents
Solves simple problems involving miles per gallon	Computes more difficult conversions among units of time	Solves problems involving tax and tips
<ul> <li>Solves simple problems involving miles/kilometers per hour</li> </ul>	Applies dimensional analysis to simple real-world problems (time)	Converts between inches, feet, and yards
Determines unit price	Solves simple problems involving miles per gallon	Converts between millimeters, centimeters, meters, and kilometers
Writes the missing number in a proportion using basic facts	Determines unit price	Uses dimensional analysis for unit conversions (length)
Identifies the percent represented in a 2-D region	Solves problems involving rates	Solves problems involving length in the customary system and
	Writes a basic percent as a fraction and vice versa (e.g., 10%, 25%,	converts to larger or smaller units  Converts between ounces and pounds
	50%, 100%)	Converts between ounces, pounds, and tons
	Expresses a percent as a fraction with 100 as the denominator and vice versa	Converts between cups, pints, quarts, and gallons
	Recognizes and writes proportions	Converts within the metric system
	Identifies the percent represented in a 2-D region	Apply dimensional analysis to simple real-world problems (capacity)
	ridentifies the percent represented in a 2-D region	Solves problems involving capacity in the customary system and
		converts to larger or smaller units
		Computes 2-step conversions between units of time
		Applies dimensional analysis to simple real-world problems (time)
		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 smalle units
		Interprets data given in circle graphs to solve complex problems (with percents)
		Expresses a percent as a fraction and vice versa
		Writes a ratio as a percent and vice versa
		Uses concrete and pictorial models to represent ratios
		Writes the missing number in a proportion with numbers other than basic facts (e.g., 5/13=?/117)
Perform Operations	Perform Operations	Perform Operations
Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only)	Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only)	Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only)

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## **Mathematics**

Goal: The Real and Complex Number Systems

211 - 220 RIT Score Range: Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
Perform Operations	Perform Operations	Perform Operations
Uses rounding to estimate answers to addition and subtraction problems (whole numbers only)  Add a publication of the state of the second	Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only)	Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only)
Adds multiple-digit numbers, with regrouping, with sums over 1000	Uses rounding to estimate answers to real-world problems involving	Uses rounding to estimate answers to real-world problems involving
Adds multiple-digit numbers with sums under 1000     Performs mental computation with more than 4 addends	numbers 1000 or greater using multiplication and division (whole numbers only)	numbers 1000 or greater using multiplication and division (whole numbers only)
Subtracts 3- or 4-digit numbers with regrouping	Uses rounding to estimate answers to difficult multiplication and	Multiplies multiple-digit numbers
Subtracts numbers with 5 digits or more with regrouping	division problems (whole numbers only)	Divides a 4-digit number by a 2-digit number
Solves real-world whole number problems involving subtraction with	Subtracts numbers with 5 digits or more with regrouping	, ,
numbers 100 and under (analysis)	Instantly recalls basic multiplication and division facts in a table	Divides multiple-digit numbers     Solves complex word problems involving whole number division with
Solves problems using the inverse relationship between addition and subtraction	Multiplies a 2-digit number by a 2-digit number with regrouping	<ul> <li>Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor)</li> </ul>
Instantly recalls basic multiplication and division facts in a table	Multiplies a 3-digit number by a 2-digit number with regrouping	Solves real-world multiple-step problems involving whole numbers
Multiplies a 2-digit number by a 1-digit number with regrouping	Performs mental computation with multiplication	Demonstrates an understanding of multiple properties
Multiplies a 3- or 4-digit number by a 1-digit number	<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
Multiplies multiple 1-digit numbers	Multiplies a 3-digit number by a 3-digit number	Adds fractions with unlike denominators without reducing
Multiplies a 2-digit number by a 2-digit number with regrouping	Multiplies a 4- or more digit number by multiples of 100 or 1000	Adds fractions with unlike denominators with reducing or converting to
Multiplies a 3-digit number by a 2-digit number with regrouping	Multiplies multiple-digit numbers	a mixed fraction
Performs mental computation with multiplication	Models whole number multiplication and division algorithms (e.g., uses)	Adds simple mixed fractions with unlike denominators (e.g., halves,
<ul> <li>Multiplies a 2- or 3-digit number by multiples of 10 or 100</li> </ul>	physical materials to show 4 groups of 3 objects)	thirds, fourths, eighths)
Multiplies a 3-digit number by a 3-digit 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 necessary
<ul> <li>Solves word problems involving whole number multiplication with numbers greater than 10 x 10</li> </ul>	remainder  • Performs mental computation with division	Subtracts fractions with like denominators with reducing
Models whole number multiplication and division algorithms (e.g., uses)	Divides a 4-digit number by a 1-digit number with no remainder	Subtracts fractions with unlike denominators without reducing
physical materials to show 4 groups of 3 objects)	Divides a 3-digit number by a 2-digit number	Subtracts fractions with unlike denominators with reducing
• Instantly recalls division facts with dividend and divisors less than 13	Divides a 4-digit number by a 2-digit number	Subtracts mixed fractions with unlike denominators with no regrouping
• Divides a 2-digit number by a 1-digit number with no remainder	Divides multiple-digit numbers	Subtracts whole numbers, fractions, and mixed fractions
• Divides a 2-digit number or a 3-digit number by a 1-digit number with a	Solves whole number word problems with division over 10 x 10	Subtracts whole numbers, fractions, and mixed fractions with
remainder	Solves complex word problems involving whole number division with	regrouping
Performs mental computation with division	remainder (e.g., 2-step, 2-digit divisor)	Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary
Divides a 3-digit number by a 1-digit number with no remainder	Solves real-world problems involving 2-step multiple operations, whole	Uses models to multiply and divide fractions and connect the actions
Divides a 4-digit number by a 1-digit number with no remainder	numbers only	to algorithms
Divides a 3-digit number by a multiple of 10	Solves real-world multiple-step problems involving whole numbers	Multiplies a fraction by a fraction without reducing to simplest form
Divides a 4-digit number by a 2-digit number	Demonstrates an understanding of the inverse relationship between addition and subtraction	(complex problem)
<ul> <li>Solves word problems with whole number division facts with dividend and divisors less than 11</li> </ul>	Adds fractions with like denominators without reducing	Multiplies a fraction by a fraction where reducing to simplest form is necessary
Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor)	Adds fractions with like denominators with reducing or converting to a mixed fraction	Multiplies a fraction by a whole number
• Solves whole number word problems with division over 10 x 10	Adds fractions with unlike denominators without reducing	Multiplies mixed fractions
• Solves whole number word problems with division over 10 x 10	The state of the s	Divides a fraction by a fraction

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## **Mathematics**

Goal: The Real and Complex Number Systems

211 - 220 RIT Score Range: Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*)	Skills and Concepts to Develop (50% Probability*)	Skills and Concepts to Introduce (27% Probability*)
201 - 210	211 - 220	221 - 230
Perform Operations	Perform Operations	Perform Operations
<ul> <li>Uses division for multiple-step real-world problems (whole numbers)</li> <li>Solves real-world problems involving 2-step multiple operations, whole</li> </ul>	Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths)	<ul> <li>Solves 1-step real-world problems involving fractions with multiplication and division</li> </ul>
numbers only	Subtracts fractions with unlike denominators without reducing	Solves 2- or more step real-world problems involving fractions with
<ul> <li>Adds fractions with like denominators without reducing</li> </ul>	Subtracts mixed fractions with like denominators with no regrouping	multiplication and division
<ul> <li>Adds whole numbers and fractions</li> </ul>	Subtracts mixed fractions with unlike denominators with no regrouping	<ul> <li>Solves problems involving fractions (e.g., multiple operations, conversions)</li> </ul>
<ul> <li>Uses models to add and subtract fractions and connect the actions to algorithms</li> </ul>	Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary	Adds decimals to the hundredths place in horizontal format (not same
<ul> <li>Subtracts fractions with like denominators without reducing</li> </ul>	Uses models to multiply and divide fractions and connect the actions	number of digits)  • Adds decimals through the hundred-thousandths place
<ul> <li>Subtracts mixed fractions with like denominators with no regrouping</li> </ul>	to algorithms	Subtracts decimals to the hundredths place (not same number of digits)
<ul> <li>Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators</li> </ul>	<ul> <li>Multiplies a fraction by a fraction where reducing to simplest form is necessary</li> </ul>	Subtracts decimals to the thousandths place, horizontally, with and
Multiplies a fraction by a fraction without reducing to simplest form	Multiplies a fraction by a whole number	without regrouping
(simple problem)  • Adds decimals to the thousandths place horizontally with and without	Solves 1-step real-world problems involving fractions with multiplication and division	<ul> <li>Subtracts decimals through the hundred-thousandths place, horizontally</li> </ul>
regrouping	Adds decimals to the hundredths place in horizontal format (not same)	Subtracts a decimal from a whole number, horizontally
<ul> <li>Subtracts decimals to the hundredths place (same number of digits) with regrouping</li> </ul>	number of digits)  • Adds decimals to the thousandths place horizontally with and without	<ul> <li>Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths)</li> </ul>
Subtracts decimals to the thousandths place, vertically, with and	regrouping	Multiplies a decimal by a decimal (factors to hundredths)
without regrouping	Adds decimals through the hundred-thousandths place	Multiplies a decimal by 10, 100, 1000
• Subtracts decimals through the hundred-thousandths place, vertically	Subtracts decimals to the thousandths place, horizontally, with and	Multiplies a decimal by a decimal (factors to thousandths)
Computes the value of multiple bills and coins (addition/subtraction	without regrouping	<ul> <li>Divides a decimal by 10, 100, 1000</li> </ul>
only)	<ul> <li>Computes the value of multiple bills and coins (addition/subtraction only)</li> </ul>	Divides a decimal by a decimal
<ul><li>Multiplies a decimal by whole number</li><li>Divides decimal by a whole number</li></ul>	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>Computes with dollars and cents up to and including \$5.00 and</li> </ul>	money over \$5.00 (addition/subtraction only)	Computes the value of multiple bills and coins (multiplication/division)
converts to decimals (multiplication/division)	Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths)	Calculate the sum of integers using a number line
<ul> <li>Computes addition and subtraction on multiple-step real-world problems involving money</li> </ul>	Multiplies a decimal by a decimal (factors to hundredths)	Adds integers with unlike signs
Computes money problems with multiple operations (addition/	Divides decimal by a whole number	Adds several positive and negative integers
subtraction only)  • Computes addition, subtraction, multiplication, and division on multiple-	Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division)	<ul> <li>Uses models to add and subtract integers and connect the actions to algorithms</li> </ul>
step, real-world problems involving money	Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)	Subtracts integers     Subvariable manipulation addition and subtraction of
<ul> <li>Solves real-world problems involving addition and subtraction of integers</li> </ul>	Computes addition and subtraction on multiple-step real-world	<ul> <li>Solves real-world problems involving addition and subtraction of integers</li> </ul>
<ul> <li>Solves problems involving measurement of time</li> </ul>	problems involving money	Solves problems involving addition and subtraction of integers
<ul> <li>Solves simple problems involving elapsed time, with the conversion of hours</li> </ul>	<ul> <li>Computes addition, subtraction, multiplication, and division on multiple- step, real-world problems involving money</li> </ul>	<ul><li>Multiplies integers with unlike signs</li><li>Divides integers with unlike signs</li></ul>
Solves problems using tables	Adds integers with like signs	Divides integers with like signs
Writes a terminating decimal as a fraction or mixed number	Uses models to add and subtract integers and connect the actions to	Adds rational expressions in decimal form
Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)	algorithms • Solves real-world problems involving addition and subtraction of integers	Identifies the additive inverse property

### **Explanatory Notes**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 211 - 220 Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
Perform Operations	Perform Operations	Perform Operations
	Multiplies integers with unlike signs	• Solves difficult problems involving elapsed time, with the conversion of
	Divides integers with unlike signs	hours
	Divides integers with like signs	<ul> <li>Interprets data given in tables to solve problems</li> </ul>
	Demonstrates an understanding that division by 0 is undefined	Writes a simple mixed fraction as a decimal and vice versa
	Solves difficult problems involving elapsed time, with the conversion of hours	<ul> <li>Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10</li> </ul>
	Selects and uses the appropriate units depending on degree of accuracy required to solve problems	<ul><li>Determines factors of whole numbers</li><li>Uses multiple number theory concepts to solve problems (e.g., factors,</li></ul>
	Expresses a simple fraction as a decimal	digits, odd/even, divisibility)
	Writes a simple mixed fraction as a decimal and vice versa	<ul> <li>Uses factor and multiple concepts to solve simple problems</li> </ul>
	Writes a fraction or mixed number as a decimal when the denominator	<ul> <li>Identifies common factors of two or more numbers</li> </ul>
	is a multiple of 10	<ul> <li>Identifies the greatest common factor of whole numbers</li> </ul>
	Expresses a percent as a decimal and vice versa	
	<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	
	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 the first quadrant	Predicts the relative size of the answer when computing with 10's,	Graphs ordered pairs in all quadrants
<ul> <li>Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)</li> </ul>	100's, 1000's  • Predicts the relative size of the answer when multiplying whole	<ul> <li>Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)</li> </ul>
Determines the distance between horizontal and vertical lines in the	numbers	Determines the relative magnitude of whole numbers
first quadrant of a rectangular coordinate system	Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system	<ul> <li>Rounds whole numbers to the nearest million</li> </ul>
<ul> <li>Determines the distance between points, following grid lines, in the first</li> </ul>	inst quadrant of a rectangular coordinate system	
quadrant on a coordinate graph (as in city blocks)	Locates the origin on a coordinate grid	• Writes equivalent forms of whole numbers using place value (numbers 100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)
quadrant on a coordinate graph (as in city blocks)  • Locates the origin on a coordinate grid	<ul> <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>Locates the origin on a coordinate grid</li><li>Identifies whole numbers over 999 using base-10 blocks</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>	100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)
Locates the origin on a coordinate grid	<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> <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>Determines simple equivalent fractions using multiples</li> </ul>
<ul> <li>Locates the origin on a coordinate grid</li> <li>Identifies whole numbers over 999 using base-10 blocks</li> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> <li>Identifies the numeral and written name for whole numbers over</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> <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</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> </ul>
<ul> <li>Locates the origin on a coordinate grid</li> <li>Identifies whole numbers over 999 using base-10 blocks</li> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> <li>Identifies the numeral and written name for whole numbers over 100,000</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> <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>Determines simple equivalent fractions using multiples</li> <li>Determines equivalent fractions using multiples</li> </ul>
<ul> <li>Locates the origin on a coordinate grid</li> <li>Identifies whole numbers over 999 using base-10 blocks</li> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> <li>Identifies the numeral and written name for whole numbers over 100,000</li> <li>Compares whole numbers through the billions using the symbols &lt;, &gt;, or =</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> <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</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>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>Locates the origin on a coordinate grid</li> <li>Identifies whole numbers over 999 using base-10 blocks</li> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> <li>Identifies the numeral and written name for whole numbers over 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>	<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> <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>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>Locates the origin on a coordinate grid</li> <li>Identifies whole numbers over 999 using base-10 blocks</li> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> <li>Identifies the numeral and written name for whole numbers over 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>	<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> <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>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>Locates the origin on a coordinate grid</li> <li>Identifies whole numbers over 999 using base-10 blocks</li> <li>Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place</li> <li>Identifies the numeral and written name for whole numbers over 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>	<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> <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> <li>Identifies eighths, reduced to 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>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>

### Explanatory Notes

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 211 - 220 Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
<ul> <li>Rounds wholes numbers to the nearest billion</li> </ul>	Compares fractions on a number line	Compares and orders decimals to the thousandths place (not same)
Explains the rules for rounding	Compares fractions greater than or less than a given fraction using	number of digits after decimal)
• Writes equivalent forms of whole numbers using place value (e.g., 54 =	visual representations	Compares and orders decimals past the thousandths place
4 tens and 14 ones)	Compares fractions and mixed numbers	Rounds decimals to the nearest hundredth
Identifies the place value and value of each digit in whole numbers	Compares fractions and mixed numbers using symbols	Rounds decimals to nearest thousandth
through the billions	Orders fractions on a number line	Identifies the place value and value of each digit to the hundredths and
<ul> <li>Writes whole numbers in standard and expanded form through the hundred thousands</li> </ul>	Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)	thousandths  • Applies base ten place value concepts to solve problems using
<ul> <li>Applies base ten place value concepts with whole numbers to solve</li> </ul>	Represents a decimal to the hundredths place (e.g., three hundredths)	decimals
problems	= 0.03)	Compares two integers
<ul> <li>Writes whole numbers using place value terms and vice versa</li> </ul>	Compares and orders decimals past the thousandths place	Orders integers on a number line
<ul> <li>Identifies halves of a region using nonadjacent parts</li> </ul>	Rounds decimals to the nearest whole number	Orders integers
<ul> <li>Identifies equivalent fractions using visual representations</li> </ul>	Rounds decimals to the nearest tenth	Locates rational numbers on a number line
<ul> <li>Expresses 1 in many different ways (e.g., 3/3, 4/4)</li> </ul>	Applies base ten place value concepts to solve problems using	Orders rational numbers, in a/b form
Converts a basic fractional numeral to lowest terms (e.g., halves,	decimals	Orders fractions and decimals to the hundred thousandths
thirds, quarters)	Identifies an integer from a number line	
<ul> <li>Writes mixed numbers as improper fractions and improper fractions as mixed numbers</li> </ul>	Compares two integers	
Compares fractions (e.g., common denominator, 1 in the numerator,	Orders integers on a number line	
denominator is 2, 3, 4, 6, 8, 10)	Defines integers	
<ul> <li>Orders fractions on a number line</li> </ul>		
<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>		
<ul> <li>Identifies a decimal on a number line to the tenths place</li> </ul>		
Rounds decimals to the nearest whole number		
Compares integers on a number line		
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**

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## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 221 - 230 Statements Last Updated: Aug 4, 2014

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



### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 221 - 230 Statements Last Updated: Aug 4, 2014

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 rounding to estimate answers to real-world problems involving	Uses rounding to estimate answers to real-world problems involving	Divides multiple-digit numbers
multiplication and division of numbers less than 100 (whole numbers only)	multiplication and division of numbers less than 100 (whole numbers only)	Divides numbers by powers of 10
Uses rounding to estimate answers to real-world problems involving	Uses rounding to estimate answers to real-world problems involving	Adds fractions with unlike denominators with reducing or converting to a mixed fraction
numbers less than 1000 with multiplication and division (whole numbers only)	numbers less than 1000 with multiplication and division (whole numbers only)	Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)
<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>	Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)	Adds mixed fractions where converting from improper fractions is 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
Subtracts numbers with 5 digits or more with regrouping	Divides multiple-digit numbers	regrouping
Instantly recalls basic multiplication and division facts in a table	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
Multiplies a 3-digit number by a 2-digit number with regrouping	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>	Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)	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 remainder	Adds mixed fractions where converting from improper fractions is necessary	<ul><li>Divides a whole number by a mixed fraction</li><li>Divides a mixed fraction by a fraction</li></ul>
Performs mental computation with division	Subtracts fractions with like denominators with reducing	Divides a fraction by a mixed fraction
Divides a 4-digit number by a 1-digit number with no remainder	Subtracts fractions with unlike denominators without reducing	Divides a mixed fraction by a mixed fraction
Divides a 3-digit number by a 2-digit number	Subtracts fractions with unlike denominators with reducing	Solves 2- or more step real-world problems involving fractions with
Divides a 4-digit number by a 2-digit number	Subtracts mixed fractions with unlike denominators with no regrouping	multiplication and division
Divides multiple-digit numbers	Subtracts whole numbers, fractions, and mixed fractions	Solves problems involving fractions (e.g., multiple operations, conversions)
• Solves whole number word problems with division over 10 x 10	Subtracts whole numbers, fractions, and mixed fractions with	Subtracts a decimal from a whole number, horizontally
Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor)	regrouping 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 addition and subtraction	Multiplies a fraction by a fraction without reducing to simplest form (complex problem)	Adds integers with unlike signs     Adds several positive and negative integers
Adds fractions with like denominators without reducing	Multiplies a fraction by a fraction where reducing to simplest form is	Subtracts integers
Adds fractions with like denominators with reducing or converting to a	necessary	Solves problems involving addition and subtraction of integers
mixed fraction	Multiplies a fraction by a whole number     Multiplies mixed fractions	Multiplies integers with like signs



### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 221 - 230 Statements Last Updated: Aug 4, 2014

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
<ul> <li>Adds fractions with unlike denominators without reducing</li> </ul>	Divides a fraction by a fraction	Divides integers with like signs
<ul> <li>Adds simple mixed fractions with unlike denominators (e.g., halves,</li> </ul>	Divides a mixed fraction by a fraction	Subtracts rational expressions in decimal form
thirds, fourths, eighths)	Solves 1-step real-world problems involving fractions with	Multiplies rational expressions
<ul> <li>Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths)</li> </ul>	multiplication and division	Identifies the additive inverse property
Subtracts fractions with unlike denominators without reducing	Solves 2- or more step real-world problems involving fractions with multiplication and division	Interprets data given in tables to solve problems
Subtracts mixed fractions with like denominators with no regrouping	Solves problems involving fractions (e.g., multiple operations,	Writes a fraction as a decimal and vice versa
Subtracts mixed fractions with unlike denominators with no regrouping	conversions)	Writes a fraction as a mixed decimal and vice versa
Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary	Adds decimals to the hundredths place in horizontal format (not same number of digits)	
Uses models to multiply and divide fractions and connect the actions to	Adds decimals through the hundred-thousandths place	
algorithms	Subtracts decimals to the hundredths place (not same number of digits)	
<ul> <li>Multiplies a fraction by a fraction where reducing to simplest form is necessary</li> </ul>	Subtracts decimals to the thousandths place, horizontally, with and without regrouping	
<ul> <li>Multiplies a fraction by a whole number</li> </ul>	Subtracts decimals through the hundred-thousandths place,	
Solves 1-step real-world problems involving fractions with multiplication	horizontally	
and division	Subtracts a decimal from a whole number, horizontally	
<ul> <li>Adds decimals to the hundredths place in horizontal format (not same number of digits)</li> </ul>	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</li> </ul>	Multiplies a decimal by a decimal (factors to hundredths)	
regrouping  • Adds decimals through the hundred-thousandths place	Multiplies a decimal by 10, 100, 1000	
Subtracts decimals to the thousandths place, horizontally, with and	Multiplies a decimal by a decimal (factors to thousandths)	
without regrouping	• Divides a decimal by 10, 100, 1000	
Computes the value of multiple bills and coins (addition/subtraction	Divides a decimal by a decimal	
only)	Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)	
<ul> <li>Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only)</li> </ul>	Computes the value of multiple bills and coins (multiplication/division)	
Multiplies a decimal by a decimal, vertical form (factors to tenths or	Calculate the sum of integers using a number line	
hundredths)	Adds integers with unlike signs	
<ul> <li>Multiplies a decimal by a decimal (factors to hundredths)</li> </ul>	Adds several positive and negative integers	
<ul> <li>Divides decimal by a whole number</li> </ul>	Uses models to add and subtract integers and connect the actions to	
<ul> <li>Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division)</li> </ul>	algorithms • Subtracts integers	
<ul> <li>Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)</li> </ul>	Solves real-world problems involving addition and subtraction of integers	
<ul> <li>Computes addition and subtraction on multiple-step real-world</li> </ul>	Solves problems involving addition and subtraction of integers	
problems involving money	Multiplies integers with unlike signs	
<ul> <li>Computes addition, subtraction, multiplication, and division on multiple- step, real-world problems involving money</li> </ul>	Divides integers with unlike signs	
Adds integers with like signs	Divides integers with like signs	
. 1885 Ogoro Marimo digrio	Adds rational expressions in decimal form	

### **Explanatory Notes**



### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 221 - 230 Statements Last Updated: Aug 4, 2014

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>		
• 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
• Predicts the relative size of the answer when computing with 10's,	Graphs ordered pairs in all quadrants	Simplifies rational expressions with absolute value
100's, 1000's	Computes and interprets distance, given a set of ordered pairs	Graphs ordered pairs in all quadrants
<ul> <li>Predicts the relative size of the answer when multiplying whole numbers</li> </ul>	(horizontal and vertical lines)  • Determines the relative magnitude of whole numbers	Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)
• Determines the distance between horizontal and vertical lines in the	Rounds whole numbers to the nearest million	Determines the relative magnitude of whole numbers
first quadrant of a rectangular coordinate system	Writes equivalent forms of whole numbers using place value (numbers	Writes whole numbers in standard and exponential form
Locates the origin on a coordinate grid	100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)	Compares fractions (e.g., comparing numerators and denominators)
• Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred	Writes whole numbers in standard and exponential form	Rounds decimals to the nearest hundredth
• Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand	Identifies a fractions in lowest terms from a region or set	Compares and orders decimal and fractional coordinates on a number
• Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand	Determines simple equivalent fractions using multiples	line
Rounds wholes numbers to the nearest billion	Determines equivalent fractions using multiples	
Writes whole numbers in standard and expanded form through the hundred thousands	Compares fractions (e.g., comparing numerators and denominators)	
Identifies equivalent fractions using visual representations	Uses alternative algorithms to explain the meaning of fraction	
Identifies a fractions in lowest terms from a region or set	• Represents a decimal to thousandths place (e.g., three thousandths =	
Identifies eighths, reduced to lowest terms, from a region or set	0.003)	
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### **Explanatory Notes**



### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 221 - 230 Statements Last Updated: Aug 4, 2014

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
<ul> <li>Determines simple equivalent fractions using multiples</li> </ul>	Represents a decimal to the hundred thousandths place - (e.g., three	
Converts fractions to lowest terms	hundred thousandths = 0. 00003)	
• Writes mixed numbers as improper fractions and improper fractions as	Writes a decimal for a shaded region to the hundredths place	
mixed numbers	Compares and orders decimals to the hundredths place (not same	
Compares fractions on a number line	number of digits after decimal)	
<ul> <li>Compares fractions greater than or less than a given fraction using visual representations</li> </ul>	Compares and orders decimals to the thousandths place (not same number of digits after decimal)	
Compares fractions and mixed numbers	Compares and orders decimals past the thousandths place	
Compares fractions and mixed numbers using symbols	Rounds decimals to the nearest hundredth	
Orders fractions on a number line	Rounds decimals to nearest thousandth	
<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 the place value and value of each digit to the hundredths and thousandths	
• Represents a decimal to the hundredths place (e.g., three hundredths = 0.03)	Applies base ten place value concepts to solve problems using decimals	
Compares and orders decimals past the thousandths place	Compares two integers	
Rounds decimals to the nearest whole number	Orders integers on a number line	
Rounds decimals to the nearest tenth	Orders integers	
Applies base ten place value concepts to solve problems using	Locates rational numbers on a number line	
decimals	Orders rational numbers, in a/b form	
<ul> <li>Identifies an integer from a number line</li> </ul>	Orders fractions and decimals to the hundred thousandths	
Compares two integers		
<ul> <li>Orders integers on a number line</li> </ul>		
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, $\neq$ not equal to, yd yard	centimeter/centimetre, °C degrees Celsius, km kilometer/kilometre, mL milliliter/millilitre, # number, / per, + positive number, · ratio	

**Explanatory Notes** 

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## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 231 - 240 Statements Last Updated: Aug 4, 2014

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

### **Explanatory Notes**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 231 - 240 Statements Last Updated: Aug 4, 2014

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
<ul> <li>Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only)</li> </ul>	Divides multiple-digit numbers     Divides numbers by powers of 10	Uses a number line to determine the distance between a positive and negative number      Subtracts integers.
Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only)	<ul> <li>Adds fractions with unlike denominators with reducing or converting to a mixed fraction</li> <li>Adds simple mixed fractions with unlike denominators (e.g., halves,</li> </ul>	Subtracts integers     Uses the multiplicative inverse property with rational numbers     Uses factor and multiple concepts to solve difficult problems
Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)	thirds, fourths, eighths)  • Adds mixed fractions where converting from improper fractions is necessary	Identifies the least common multiple of whole numbers
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	
Demonstrates an understanding of multiple properties	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	
<ul> <li>Adds fractions with unlike denominators without reducing</li> </ul>	Divides a fraction by a fraction	
<ul> <li>Adds fractions with unlike denominators with reducing or converting to a mixed fraction</li> </ul>	Divides a fraction by a whole number	
Adds simple mixed fractions with unlike denominators (e.g., halves,	Divides a whole number by a fraction	
thirds, fourths, eighths)	Divides a mixed fraction by a whole number	
<ul> <li>Adds mixed fractions where converting from improper fractions is</li> </ul>	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	
Subtracts fractions with unlike denominators without reducing     Subtracts fractions with unlike denominators with reducing	Divides a mixed fraction by a mixed fraction     Other 0 program at a good world problem in a fraction with	
<ul> <li>Subtracts fractions with unlike denominators with reducing</li> <li>Subtracts mixed fractions with unlike denominators with no regrouping</li> </ul>	Solves 2- or more step real-world problems involving fractions with multiplication and division	
Subtracts whole numbers, fractions, and mixed fractions	Solves problems involving fractions (e.g., multiple operations,	
Subtracts whole numbers, fractions, and mixed fractions with	conversions)	
regrouping	Subtracts a decimal from a whole number, horizontally     Multiplies a decimal by 10, 100, 1000	
<ul> <li>Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary</li> </ul>	Divides a whole number by a decimal	
Uses models to multiply and divide fractions and connect the actions to	Divides a whole hamber by a desimal    Divides a decimal by 10, 100, 1000	
algorithms	Divides a decimal by a decimal	
<ul> <li>Multiplies a fraction by a fraction without reducing to simplest form (complex problem)</li> </ul>	Adds integers with unlike signs	
Multiplies a fraction by a fraction where reducing to simplest form is necessary	<ul><li>Adds several positive and negative integers</li><li>Subtracts integers</li></ul>	
Multiplies a fraction by a whole number	Solves problems involving addition and subtraction of integers	
Multiplies mixed fractions	Multiplies integers with like signs	
Evalenctory Notes		

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 231 - 240 Statements Last Updated: Aug 4, 2014

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
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	Multiplies rational expressions	
and division	Identifies the additive inverse property	
<ul> <li>Solves 2- or more step real-world problems involving fractions with multiplication and division</li> </ul>	Interprets data given in tables to solve problems	
Solves problems involving fractions (e.g., multiple operations,	Writes a fraction as a decimal and vice versa	
conversions)	Writes a fraction as a mixed decimal and vice versa	
<ul> <li>Adds decimals to the hundredths place in horizontal format (not same number of digits)</li> </ul>		
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		
<ul> <li>Subtracts decimals through the hundred-thousandths place, horizontally</li> </ul>		
Subtracts a decimal from a whole number, horizontally		
<ul> <li>Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths)</li> </ul>		
• 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		
Divides a decimal by a decimal		
Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division)		
Computes the value of multiple bills and coins (multiplication/division)		
Calculate the sum of integers using a number line		
• Adds integers with unlike signs		
Adds several positive and negative integers		
<ul> <li>Uses models to add and subtract integers and connect the actions to algorithms</li> </ul>		
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**

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### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 231 - 240 Statements Last Updated: Aug 4, 2014

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	Simplifies rational expressions with absolute value	Estimates the square roots of numbers
<ul> <li>Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)</li> <li>Determines the relative magnitude of whole numbers</li> </ul>	Graphs ordered pairs in all quadrants     Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)	Simplifies expressions containing square roots     Uses expressions with absolute value to represent situations     Computes and interprets distance, given a set of ordered pairs
Rounds whole numbers to the nearest million	Determines the relative magnitude of whole numbers	(horizontal and vertical lines)
• Writes equivalent forms of whole numbers using place value (numbers 100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones)	Writes whole numbers in standard and exponential form     Compares fractions (e.g., comparing numerators and denominators)	
Writes whole numbers in standard and exponential form	Rounds decimals to the nearest hundredth	
• Identifies a fractions in lowest terms from a region or set	Compares and orders decimal and fractional coordinates on a number	
• Determines simple equivalent fractions using multiples	line	
Determines equivalent fractions using multiples		
• Compares fractions (e.g., comparing numerators and denominators)		
• Uses alternative algorithms to explain the meaning of fraction		
• 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		
Rounds decimals to nearest thousandth		

### **Explanatory Notes**

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Mathematics

Goal: The Real and Complex Number Systems

RIT Score Range: 231 - 240 Statements Last Updated: Aug 4, 2014

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
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		
Orders integers on a number line		
Orders integers		
<ul> <li>Locates rational numbers on a number line</li> </ul>		
Orders rational numbers, in a/b form		
Orders fractions and decimals to the hundred thousandths		
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** 

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## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 241 - 250 Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
<ul> <li>Uses estimation to solve problems involving proportional reasoning (decimals only)</li> </ul>	Solves real-world problems involving decimals (not money) using multiplication	Solves problems involving complex percent discounts (e.g., finding percent discount, regular price)
<ul> <li>Solves real-world problems involving decimals (not money) using</li> </ul>	Solves multiple-step problems involving proportions	Solves problems involving successive discounts
multiplication	Solves problems involving a fractional increase	Uses dimensional analysis for unit conversions (time)
<ul><li>Solves problems involving equivalent fractions (analysis)</li><li>Solves problems involving ratios</li></ul>	Calculates the percent one number is of another (e.g., 20 is what % of 90)	Solves problems involving rate conversions (e.g., mi/hr to ft/sec)
<ul> <li>Solves multiple-step problems involving proportions</li> </ul>	Calculates a percent of a rational number (e.g., 6% of 0.78)	
<ul> <li>Calculates a percent of a number (e.g., 6% of 30)</li> </ul>	Solves problems involving percents (analysis)	
<ul> <li>Calculates the percent one number is of another (e.g., 20 is what % of 90)</li> </ul>	Solves problems involving simple percent discounts (e.g., finding sale price)	
<ul> <li>Solves problems involving percents</li> </ul>	Solves problems involving complex percent discounts (e.g., finding)	
<ul> <li>Solves problems involving percents (analysis)</li> </ul>	percent discount, regular price)	
<ul> <li>Solves problems involving simple percent discounts (e.g., finding sale price)</li> </ul>	Calculates commission/deductions and total pay     Solves problems involving successive discounts	
Solves problems involving percent increase and decrease	Uses dimensional analysis for unit conversions (length)	
Solves problems involving tax and tips	Apply dimensional analysis to simple real-world problems (length)	
<ul> <li>Calculates commission/deductions and total pay</li> </ul>	Solves problems involving weight in the customary system and	
<ul> <li>Converts between millimeters, centimeters, meters, and kilometers</li> </ul>	converts to larger or smaller units	
<ul> <li>Uses dimensional analysis for unit conversions (length)</li> </ul>	Uses dimensional analysis for unit conversions (time)	
<ul> <li>Converts between the customary and metric system given conversion ratios (2-step, length)</li> </ul>	Solves problems involving rate conversions (e.g., mi/hr to ft/sec)     Identifies the ratio from a given real-world situation	
<ul> <li>Apply dimensional analysis to simple real-world problems (length)</li> </ul>		
<ul> <li>Solves problems involving length in the customary system and converts to larger or smaller units</li> </ul>		
<ul> <li>Converts between grams and kilograms</li> </ul>		
<ul> <li>Solves problems involving weight in the customary system and converts to larger or smaller units</li> </ul>		
Converts within the metric system		
<ul> <li>Apply dimensional analysis to simple real-world problems (capacity)</li> </ul>		
<ul> <li>Solves problems involving capacity in the customary system and converts to larger or smaller units</li> </ul>		
<ul> <li>Solves complex problems involving miles per gallon</li> </ul>		
<ul> <li>Solves problems comparing unit prices</li> </ul>		
<ul> <li>Solves problems involving rates</li> </ul>		
<ul> <li>Interprets data given in circle graphs to solve complex problems (with percents)</li> </ul>		
<ul> <li>Expresses a percent as a fraction and vice versa</li> </ul>		
Writes a ratio as a percent and vice versa		
<ul> <li>Identifies the ratio from a given real-world situation</li> </ul>		

### **Explanatory Notes**



### **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 241 - 250 Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
Perform Operations	Perform Operations	Perform Operations
Divides multiple-digit numbers	Uses a number line to determine the distance between a positive and	Uses the additive inverse property with rational numbers
• 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	Subtracts integers     Uses the multiplicative inverse property with rational numbers	simplest form  • Uses factor and multiple concepts to solve difficult problems
Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)	Uses factor and multiple concepts to solve difficult problems     Identifies the least common multiple of whole numbers	
Adds mixed fractions where converting from improper fractions is necessary	ladining the least common manple of whole name is	
Subtracts whole numbers, fractions, and mixed fractions		
Subtracts whole numbers, fractions, and mixed fractions with regrouping		
Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary		
Uses models to multiply and divide fractions and connect the actions to algorithms		
Multiplies mixed fractions		
Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms		
Divides a fraction by a fraction		
Divides a fraction by a whole number		
Divides a whole number by a fraction		
Divides a mixed fraction by a whole number		
Divides a whole number by a mixed fraction		
Divides a mixed fraction by a fraction		
Divides a fraction by a mixed fraction		
Divides a mixed fraction by a mixed fraction		
Solves 2- or more step real-world problems involving fractions with multiplication and division		
<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		
Adds several positive and negative integers		
Subtracts integers		
Solves problems involving addition and subtraction of integers		
Multiplies integers with like signs		

### **Explanatory Notes**

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**Mathematics** 

Goal: The Real and Complex Number Systems

RIT Score Range: 241 - 250 Statements Last Updated: Aug 4, 2014

Skills and Concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
Perform Operations	Perform Operations	Perform Operations
Divides integers with like signs		
Subtracts rational expressions in decimal form		
Multiplies rational expressions		
Identifies the additive inverse property		
• Interprets data given in tables to solve problems		
Writes a fraction as a decimal and vice versa		
<ul> <li>Writes a fraction as a mixed decimal and vice versa</li> </ul>		
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
Simplifies rational expressions with absolute value	Estimates the square roots of numbers	Simplifies expressions containing square roots
Graphs ordered pairs in all quadrants	Simplifies expressions containing square roots	Simplifies radical expressions
Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)	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
Determines the relative magnitude of whole numbers	(horizontal and vertical lines)	
Writes whole numbers in standard and exponential form		
• Compares fractions (e.g., comparing numerators and denominators)		
Rounds decimals to the nearest hundredth		
• Compares and orders decimal and fractional coordinates on a number line		
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** 

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\* 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.

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## **Mathematics**

Goal: The Real and Complex Number Systems

RIT Score Range: 251 - 260 Statements Last Updated: Aug 4, 2014

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>	Solves problems involving complex percent discounts (e.g., finding percent discount, regular price)	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 successive discounts	3
<ul> <li>Solves problems involving a fractional increase</li> </ul>	Uses dimensional analysis for unit conversions (time)	
<ul> <li>Calculates the percent one number is of another (e.g., 20 is what % of 90)</li> </ul>	Solves problems involving rate conversions (e.g., mi/hr to ft/sec)	
<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
<ul> <li>Uses a number line to determine the distance between a positive and negative number</li> </ul>	Uses the additive inverse property with rational numbers     Performs operations on complex numbers and expresses the results in	Performs operations on complex numbers and expresses the results in simplest form
Subtracts integers	simplest form	
<ul> <li>Uses the multiplicative inverse property with rational numbers</li> </ul>	Uses factor and multiple concepts to solve difficult problems	
<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
<ul> <li>Estimates the square roots of numbers</li> </ul>	Simplifies expressions containing square roots	
<ul> <li>Simplifies expressions containing square roots</li> </ul>	Simplifies radical expressions	
<ul> <li>Uses expressions with absolute value to represent situations</li> </ul>	Uses expressions with absolute value to represent situations	
<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**

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Mathematics

Goal: The Real and Complex Number Systems

RIT Score Range: > 260 Statements Last Updated: Aug 4, 2014

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
Solves problems involving complex percent discounts (e.g., finding percent discount, regular price)     Solves problems involving successive discounts	Solves problems involving successive discounts     Solves problems involving rate conversions (e.g., mi/hr to ft/sec)
<ul> <li>Uses dimensional analysis for unit conversions (time)</li> <li>Solves problems involving rate conversions (e.g., mi/hr to ft/sec)</li> </ul>	
Perform Operations	Perform Operations
Uses the additive inverse property with rational numbers     Performs operations on complex numbers and expresses the results in simplest form	Performs operations on complex numbers and expresses the results in simplest form
Uses factor and multiple concepts to solve difficult problems	
New Vocabulary: None	New Vocabulary: None
New Signs and Symbols: i square root of -1	New Signs and Symbols: None

**Explanatory Notes**