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Mathematics $\quad$ RIT Score Range: ${ }_{211-220}^{210}$

Goal: Number and Operations
RIT Score Range:
211-220

| 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 |
| :---: | :---: | :---: |
| Understand Place Value, Counting, and Cardinality | Understand Place Value, Counting, and Cardinality | Understand Place Value, Counting, and Cardinality |

- Identifies whole numbers over 999 using base-10 blocks
- Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place
- Identifies the numeral and written name for whole numbers over 100,000
- Compares whole numbers through the billions using the symbols <, >, or $=$
- Orders whole numbers a million or greater using < or > symbols
- Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten
- Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred
- Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand
- Rounds whole numbers to the nearest hundred thousand
- Rounds wholes numbers to the nearest billion
- Explains the rules for rounding
- Writes equivalent forms of whole numbers using place value (e.g., 54
$=4$ tens and 14 ones)
- Identifies the place value and value of each digit in whole numbers through the billions
- Writes whole numbers in standard and expanded form through the hundred thousands
- Applies base ten place value concepts with whole numbers to solve problems
- Writes whole numbers using place value terms and vice versa
- Rounds decimals to the nearest whole number

Number and Operations in Base Ten

- Uses rounding to estimate answers to addition and subtraction
problems (whole numbers only) problems (whole numbers only)
- Adds multiple-digit numbers, with regrouping, with sums over 1000
- Adds multiple-digit numbers with sums under 1000
- Performs mental computation with more than 4 addends
- Subtracts 3- or 4-digit numbers with regrouping
- Subtracts numbers with 5 digits or more with regrouping
- Instantly recalls basic multiplication and division facts in a table
- Multiplies a 2-digit number by a 1 -digit number with regrouping
- Multiplies a 3- or 4-digit number by a 1 -digit number
- Multiplies multiple 1-digit numbers
- Multiplies a 2-digit number by a 2-digit number with regrouping
- Multiplies a 3-digit number by a 2 -digit number with regrouping
- Performs mental computation with multiplication
- Predicts the relative size of the answer when computing with 10 's, 100's, 1000's
- Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred
- Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand
- Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand
- Rounds wholes numbers to the nearest billion
- Writes whole numbers in standard and expanded form through the hundred thousands
- Represents a decimal to the hundredths place (e.g., three hundredths = 0.03)
- Compares and orders decimals past the thousandths place
- Rounds decimals to the nearest whole number
- Rounds decimals to the nearest tenth
- Applies base ten place value concepts to solve problems using decimals
- Multiplies a decimal by 10, 100, 1000
- Divides a decimal by $10,100,1000$
- Determines the relative magnitude of whole numbers
- Rounds whole numbers to the nearest million
- 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
- 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 $=0.00003$ )
- 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
- Identifies the place value and value of each digit to the hundredths and thousandths
- Applies base ten place value concepts to solve problems using decimals
Number and Operations in Base Ten
- Uses rounding to estimate answers to difficult multiplication and division problems (whole numbers only)
- Subtracts numbers with 5 digits or more with regrouping
- Instantly recalls basic multiplication and division facts in a table
- Multiplies a 2-digit number by a 2-digit number with regrouping
- Multiplies a 3-digit number by a 2-digit number with regrouping
- Performs mental computation with multiplication
- Uses multiplication strategies to explain computation (e.g., doubles, 9patterns, decomposing, partial products)
- Multiplies a 3-digit number by a 3-digit number
- Multiplies a 4- or more digit number by multiples of 100 or 1000 - Multiplies multiple-digit numbers
- Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder

Number and Operations in Base Ten

- Multiplies multiple-digit numbers
- Divides a 4-digit number by a 2-digit number
- Adds decimals to the hundredths place in horizontal format (not same number of digits)
- Adds decimals through the hundred-thousandths place
- Subtracts decimals to the hundredths place (not same number of digits)
- Subtracts a decimal from a whole number, horizontally
- Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths)
- Multiplies a decimal by a decimal (factors to hundredths)
- Multiplies a decimal by a decimal (factors to thousandths)
- Divides a decimal by a decimal

Explanatory Notes Explanatory Noies

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts
appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.
Mathematics $\quad$ RIT Score Range: ${ }_{2}^{211-220}$

Goal: Number and Operations

| 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 |
| :---: | :---: | :---: |
| Number and Operations in Base Ten | Number and Operations in Base Ten | Number and Operations in Base Ten |
| - Multiplies a 2- or 3-digit number by multiples of 10 or 100 <br> - Multiplies a 3-digit number by a 3-digit number <br> - Divides a 2-digit number by a 1-digit number with no remainder <br> - Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder <br> - Divides a 3-digit number by a 1-digit number with no remainder <br> - Divides a 4-digit number by a 1-digit number with no remainder <br> - Divides a 3-digit number by a multiple of 10 <br> - Divides a 4-digit number by a 2-digit number <br> - Adds decimals to the thousandths place horizontally with and without regrouping <br> - Subtracts decimals to the hundredths place (same number of digits) with regrouping <br> - Multiplies a decimal by whole number <br> - Divides decimal by a whole number | - Divides a 4-digit number by a 1-digit number with no remainder <br> - Divides a 3-digit number by a 2-digit number <br> - Divides a 4-digit number by a 2-digit number <br> - Adds decimals to the hundredths place in horizontal format (not same number of digits) <br> - Adds decimals to the thousandths place horizontally with and without regrouping <br> - Adds decimals through the hundred-thousandths place <br> - Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) <br> - Multiplies a decimal by a decimal (factors to hundredths) <br> - Divides decimal by a whole number |  |
| Number and Operations - Fractions | Number and Operations - Fractions | Number and Operations - Fractions |
| - Adds fractions with like denominators without reducing <br> - Adds whole numbers and fractions <br> - Uses models to add and subtract fractions and connect the actions to algorithms <br> - Subtracts fractions with like denominators without reducing <br> - Subtracts mixed fractions with like denominators with no regrouping <br> - Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators <br> - Multiplies a fraction by a fraction without reducing to simplest form (simple problem) <br> - Identifies halves of a region using nonadjacent parts <br> - Identifies equivalent fractions using visual representations <br> - Expresses 1 in many different ways (e.g., 3/3, 4/4) <br> - Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters) <br> - Writes mixed numbers as improper fractions and improper fractions as mixed numbers <br> - Compares fractions (e.g., common denominator, 1 in the numerator, denominator is $2,3,4,6,8,10$ ) <br> - Orders fractions on a number line <br> - Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) <br> - Writes a terminating decimal as a fraction or mixed number | - Adds fractions with like denominators without reducing <br> - Adds fractions with like denominators with reducing or converting to a mixed fraction <br> - Adds fractions with unlike denominators without reducing <br> - Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) <br> - Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths) <br> - Subtracts fractions with unlike denominators without reducing <br> - Subtracts mixed fractions with like denominators with no regrouping <br> - Subtracts mixed fractions with unlike denominators with no regrouping <br> - Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary <br> - Uses models to multiply and divide fractions and connect the actions to algorithms <br> - Multiplies a fraction by a fraction where reducing to simplest form is necessary <br> - Multiplies a fraction by a whole number <br> - Solves 1-step real-world problems involving fractions with multiplication and division <br> - Solves 1 -step problems involving proportions <br> - Identifies equivalent fractions using visual representations <br> - Identifies a fractions in lowest terms from a region or set | - Adds fractions with like denominators with reducing or converting to a mixed fraction <br> - Adds fractions with unlike denominators without reducing <br> - Adds fractions with unlike denominators with reducing or converting to a mixed fraction <br> - Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) <br> - Adds mixed fractions where converting from improper fractions is necessary <br> - Subtracts fractions with like denominators with reducing <br> - Subtracts fractions with unlike denominators without reducing <br> - Subtracts fractions with unlike denominators with reducing <br> - Subtracts mixed fractions with unlike denominators with no regrouping <br> - Subtracts whole numbers, fractions, and mixed fractions <br> - Subtracts whole numbers, fractions, and mixed fractions with regrouping <br> - Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary <br> - Uses models to multiply and divide fractions and connect the actions to algorithms <br> - Multiplies a fraction by a fraction without reducing to simplest form (complex problem) <br> - Multiplies a fraction by a fraction where reducing to simplest form is necessary |

DesCartes: A Continuum of Learning ${ }^{\circledR}$
Mathematics $\quad$ RIT Score Range: $211-220$

Goal: Number and Operations

RIT Score Range:
Statements Last Updated: 211-220
Mar 10, 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 |
| :---: | :---: | :---: |
| Number and Operations - Fractions | Number and Operations - Fractions | Number and Operations - Fractions |
| - Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction) <br> - Writes the missing number in a proportion using basic facts | - Identifies eighths, reduced to lowest terms, from a region or set <br> - Determines simple equivalent fractions using multiples <br> - Converts fractions to lowest terms <br> - Writes mixed numbers as improper fractions and improper fractions as mixed numbers <br> - Compares fractions on a number line <br> - Compares fractions greater than or less than a given fraction using visual representations <br> - Compares fractions and mixed numbers <br> - Compares fractions and mixed numbers using symbols <br> - Orders fractions on a number line <br> - Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) <br> - Expresses a simple fraction as a decimal <br> - Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 <br> - Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction) | - Multiplies a fraction by a whole number <br> - Multiplies mixed fractions <br> - Divides a mixed fraction by a fraction <br> - Solves 1-step real-world problems involving fractions with multiplication and division <br> - Solves 2- or more step real-world problems involving fractions with multiplication and division <br> - Solves problems involving fractions (e.g., multiple operations, conversions) <br> - Solves 1-step problems involving proportions <br> - Identifies a fractions in lowest terms from a region or set <br> - Determines simple equivalent fractions using multiples <br> - Determines equivalent fractions using multiples <br> - Compares fractions (e.g., comparing numerators and denominators) <br> - Uses alternative algorithms to explain the meaning of fraction <br> - Writes a decimal for a shaded region to the hundredths place <br> - Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 |
| New Vocabulary: biggest, expanded numeral | New Vocabulary: lowest term, lowest terms, reduce, triple | New Vocabulary: short, ten million |
| New Signs and Symbols: ¢ cent sign | New Signs and Symbols: $\neq$ not equal to | New Signs and Symbols: None |

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[^0]:    Explanatory Notes
     appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

