RIDE Rhode Island Department of Education

Release of Spring 2024 RICAS Test Information

from the

Grade 5 Mathematics Test

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Rhode Island Department of Education

This document was prepared by the
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Overview of Grade 5 Mathematics Test

The spring 2024 grade 5 Mathematics test was administered in two formats: a computer-based version and a paper-based version. Most students took the computer-based test. The paper-based test was offered as an accommodation for eligible students who were unable to use a computer. More information can be found on the MCAS Test Administration Resources page at www.doe.mass.edu/mcas/admin.html.

Most of the operational items on the grade 5 Mathematics test were the same, regardless of whether a student took the computer-based version or the paper-based version. In places where a technology-enhanced item was used on the computer-based test, an adapted version of the item was created for use on the paper test. These adapted paper items were multiple-choice, multiple-select, or short-answer items that tested the same Mathematics content and assessed the same standard as the technology-enhanced item.

The Department is not releasing items from the spring 2024 RICAS grades 3–8 tests. Released items from previous years' computer-based tests are available on the RICAS Resource Center website at ricas.pearsonsupport.com/released-items.

Test Sessions and Content Overview

The grade 5 Mathematics test was made up of two separate test sessions. Each session included selected-response, short-answer, and constructed-response questions. On the paper-based test, the selected-response questions were multiple-choice items and multiple-select items, in which students select the correct answer(s) from among several answer options.

Standards and Reporting Categories

The grade 5 Mathematics test was based on standards in the five major domains for grade 5 in the *Massachusetts Curriculum Framework for Mathematics* (2017). The five major domains are listed below.

- Operations and Algebraic Thinking
- Number and Operations in Base Ten
- Number and Operations—Fractions
- Measurement and Data
- Geometry

The *Massachusetts Curriculum Framework for Mathematics* is available on the Department website at www.doe.mass.edu/frameworks/current.html.

Mathematics test results are reported under five MCAS reporting categories, which are identical to the five framework domains listed above.

The tables at the conclusion of this document provide the following information about each operational item: reporting category, standard(s) covered, item type, and item description.

Reference Materials and Tools

Each student taking the grade 5 Mathematics test was provided with a ruler and a grade 5 Mathematics Reference Sheet. A copy of the reference sheet can be found on the next page of this document.

During both Mathematics test sessions, the use of authorized bilingual word-to-word dictionaries and glossaries was allowed for students who are currently or were ever reported as English learners. No calculators, other reference tools, or materials were allowed.

Rhode Island Comprehensive Assessment System
Grade 5 Mathematics Reference Sheet

CONVERSIONS

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts

1 mile = 5280 feet
1 mile = 1760 yards

1 pound = 16 ounces
1 ton = 2000 pounds

AREA (A) FORMULAS

square . . . . . $A = s \times s$
(s = length of a side)

rectangle . . . . . $A = b \times h$
(b = length of base; h = height)
OR
$A = l \times w$
(l = length; w = width)

VOLUME (V) FORMULAS

right rectangular prism . . . . $V = l \times w \times h$
(l = length; w = width; h = height)
OR
$V = B \times h$
(B = area of base; h = height)

Grade 5 Mathematics
Spring 2024 Computer-Based Operational Items

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
1	*Measurement and Data*	5.MD.B.2	SR	Identify a line plot that displays a set of data measurements given in fractions with unlike denominators.
2	*Operations and Algebraic Thinking*	5.OA.A.1	SR	Determine the location of parentheses that will make an expression equivalent to a given value.
3	*Geometry*	5.G.A.2	SA	Graph three points in the first quadrant of the coordinate plane.
4	*Number and Operations in Base Ten*	5.NBT.A.1	SR	Determine the relationship of the value of a digit in one decimal number compared to the value of that digit in other decimal numbers.
5	*Number and Operations-Fractions*	5.NF.B.3	SR	Solve a word problem involving division of two whole numbers leading to an answer that is a fraction less than one.
6	*Number and Operations in Base Ten*	5.NBT.A.4	SA	Round a decimal number to the nearest whole number.
7	*Measurement and Data*	5.MD.C.5	CR	Use the volume formulas to find volumes of right rectangular prisms, determine the total volume of a figure composed of two right rectangular prisms, and find the length and width of a right rectangular prism given its total volume and height.
8	*Number and Operations in Base Ten*	5.NF.B.5	SR	Compare the products of two fractions to the size of one of the factors.
9	*Number and Operations in Base Ten*	5.NBT.B.6	SR	Solve a word problem by finding the quotient of a four-digit dividend and a two-digit divisor.
10	*Operations and Algebraic Thinking*	5.OA.A.1	SR	Place parentheses within an expression so that the expression is equal to a given value.
11	*Measurement and Data*	5.MD.A.1	SA	Solve a multi-step, real-world word problem by converting cups to a fraction of a gallon and display the answer using a slider on a vertical number line.
12	*Geometry*	5.G.B.3	CR	Identify rectangles and parallelograms and critique the reasoning of others about the attributes of rectangles and parallelograms.
13	*Number and Operations in Base Ten*	5.NBT.B.6	SR	Find the quotients of 4-digit dividends and 2-digit divisors.
14	*Number and Operations-Fractions*	5.NF.A.2	SR	Estimate the sum of two fractions that are less than one to solve a word problem.
15	*Measurement and Data*	5.MD.C.3	SR	Identify the statement that describes finding the volume of a right rectangular prism using unit cubes.
16	*Number and Operations-Fractions*	5.NF.B.6	SA	Solve a real-world problem by multiplying two fractions with unlike denominators.
17	*Operations and Algebraic Thinking*	5.OA.B.3	SA	Determine the next three numbers in two different patterns given the rules of the patterns and the first two numbers in each pattern, and plot two ordered pairs created from corresponding terms on a coordinate plane.
18	*Number and Operations in Base Ten*	5.NBT.A.2	SR	Determine the quotient of a whole number and a power of ten.
19	*Number and Operations-Fractions*	5.NF.A.1	SA	Solve a word problem with fractions with unlike denominators and represent the solution using a fraction model.
20	*Number and Operations in Base Ten*	5.NBT.A.3	SR	Determine the expanded form of a given decimal number to thousandths.
21	*Measurement and Data*	5.MD.C.5	SR	Determine the expression that can be used to find the volume of a right rectangular prism that is being packed with unit cubes.
22	*Number and Operations in Base Ten*	5.NBT.A.3	SR	Select decimal numbers that are larger than a given decimal number to thousandths.

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
23	*Operations and Algebraic Thinking*	5.OA.B.3	SR	Given the rules for two patterns, determine which numbers could be terms from the two patterns.
24	*Number and Operations-Fractions*	5.NF.B.7	CR	Solve word problems involving division of whole numbers and unit fractions, identify equations that can be used with those numbers and fractions, and write a word problem that can be solved with a given expression.
25	*Number and Operations in Base Ten*	5.NBT.A.1	SR	Determine the relationship of the value of a digit in one decimal number compared to the value of that digit in another decimal number.
26	*Geometry*	5.G.B.4	SR	Classify shapes in a hierarchy.
27	*Number and Operations-Fractions*	5.NF.B.4	SR	Identify a real-world problem that represents a given multiplication equation with a unit fraction and a whole number.
28	*Number and Operations in Base Ten*	5.NBT.B.5	CR	Solve real-world problems that involve finding the products of multi-digit whole numbers and justifying your answer to a real-world problem.
29	*Operations and Algebraic Thinking*	5.OA.A.2	SR	Identify expressions that are greater than a given expression by comparing the composition of the expressions rather than evaluating them.
30	*Geometry*	5.G.A.1	SR	Determine the location of points on a coordinate plane based on the value of their y-coordinate.
31	*Number and Operations-Fractions*	5.NF.B.5	SR	Identify the relationship between the product of a fraction and a mixed number and one of its factors, and identify the rationale for that relationship.
32	*Number and Operations in Base Ten*	5.NBT.A.2	SR	Use a pattern of given products of decimal numbers multiplied by powers of 10 to find other products.
33	*Measurement and Data*	5.MD.B.2	SR	Add mixed numbers to solve a problem involving information presented in a line plot.
34	*Number and Operations in Base Ten*	5.NBT.B.7	SA	Solve multi-step word problems with decimal numbers to hundredths using multiplication, addition, division, and subtraction.
35	*Operations and Algebraic Thinking*	5.OA.A.1	SR	Determine the value of given expressions with parentheses.
36	*Number and Operations-Fractions*	5.NF.B.4	SR	Determine the area of a rectangle with fractional side lengths.
37	*Number and Operations in Base Ten*	5.NBT.A.4	SR	Round a decimal number to the nearest hundredth.
38	*Measurement and Data*	5.MD.C.4	SR	Determine the volume of a right rectangular prism, with dimensions in metric units, by counting the cubes that make up the prism.
39	*Number and Operations-Fractions*	5.NF.B.6	SA	Solve a real-world problem involving multiplication of fractions.
40	*Operations and Algebraic Thinking*	5.OA.A.2	SR	Interpret a numerical expression with parentheses without evaluating it.

* Mathematics item types are: selected-response (SR), short-answer (SA), and constructed-response (CR).

Grade 5 Mathematics
Spring 2024 Paper-Based Operational Items

PBT Item No.	Reporting Category	Standard	Item Type*	Item Description
1	*Measurement and Data*	5.MD.B.2	SR	Identify a line plot that displays a set of data measurements given in fractions with unlike denominators.
2	*Operations and Algebraic Thinking*	5.OA.A.1	SR	Determine the location of parentheses that will make an expression equivalent to a given value.
3	*Geometry*	5.G.A.2	SR	Identify which graph shows three points correctly plotted in the first quadrant of the coordinate plane.
4	*Number and Operations in Base Ten*	5.NBT.A.1	SR	Determine the relationship of the value of a digit in one decimal number compared to the value of that digit in other decimal numbers.
5	*Number and Operations-Fractions*	5.NF.B.3	SR	Solve a word problem involving division of two whole numbers leading to an answer that is a fraction less than one.
6	*Number and Operations in Base Ten*	5.NBT.A.4	SA	Round a decimal number to the nearest whole number.
7	*Measurement and Data*	5.MD.C.5	CR	Use the volume formulas to find volumes of right rectangular prisms, determine the total volume of a figure composed of two right rectangular prisms, and find the length and width of a right rectangular prism given its total volume and height.
8	*Number and Operations in Base Ten*	5.NF.B.5	SR	Compare the products of two fractions to the size of one of the factors.
9	*Number and Operations in Base Ten*	5.NBT.B.6	SR	Solve a word problem by finding the quotient of a four-digit dividend and a two-digit divisor.
10	*Operations and Algebraic Thinking*	5.OA.A.1	SR	Place parentheses within an expression so that the expression is equal to a given value.
11	*Measurement and Data*	5.MD.A.1	SR	Solve a multi-step, real-world word problem by converting cups to a fraction of a gallon and identify the graphic that shows the correct answer.
12	*Geometry*	5.G.B.3	CR	Identify rectangles and parallelograms and critique the reasoning of others about the attributes of rectangles and parallelograms.
13	*Number and Operations in Base Ten*	5.NBT.B.6	SR	Find the quotients of 4-digit dividends and 2-digit divisors.
14	*Number and Operations-Fractions*	5.NF.A.2	SR	Estimate the sum of two fractions that are less than one to solve a word problem.
15	*Measurement and Data*	5.MD.C.3	SR	Identify the statement that describes finding the volume of a right rectangular prism using unit cubes.
16	*Number and Operations-Fractions*	5.NF.B.6	SR	Solve a real-world problem by multiplying two fractions with unlike denominators.
17	*Operations and Algebraic Thinking*	5.OA.B.3	SR	Determine the next three numbers in two different patterns given the rules of the patterns and the first two numbers in each pattern, and identify the graph that correctly shows two ordered pairs created from corresponding terms plotted on a coordinate plane.
18	*Number and Operations in Base Ten*	5.NBT.A.2	SR	Determine the quotient of a whole number and a power of ten.
19	*Number and Operations-Fractions*	5.NF.A.1	SR	Solve a word problem with fractions with unlike denominators and identify the fraction model that represents the solution.
20	*Number and Operations in Base Ten*	5.NBT.A.3	SR	Determine the expanded form of a given decimal number to thousandths.
21	*Measurement and Data*	5.MD.C.5	SR	Determine the expression that can be used to find the volume of a right rectangular prism that is being packed with unit cubes.
22	*Number and Operations in Base Ten*	5.NBT.A.3	SR	Select decimal numbers that are larger than a given decimal number to thousandths.

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26	*Geometry*	5.G.B.4	SR	Classify shapes in a hierarchy.
27	*Number and Operations-Fractions*	5.NF.B.4	SR	Identify a real-world problem that represents a given multiplication equation with a unit fraction and a whole number.
28	*Number and Operations in Base Ten*	5.NBT.B.5	CR	Solve real-world problems that involve finding the products of multi-digit whole numbers and justifying your answer to a real-world problem.
29	*Operations and Algebraic Thinking*	5.OA.A.2	SR	Identify expressions that are greater than a given expression by comparing the composition of the expressions rather than evaluating them.
30	*Geometry*	5.G.A.1	SR	Determine the location of points on a coordinate plane based on the value of their y-coordinate.
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