MASSACHUSETTS
Department of Elementary
and Secondary Education

Release of Spring 2026 MCAS Test Items from the Grade 5 Mathematics Paper-Based Test

Spring 2026
Massachusetts Department of Elementary and Secondary Education

MASSACHUSETTS
Department of Elementary
and Secondary Education

This document was prepared by the
Massachusetts Department of Elementary and Secondary Education
Pedro Martinez
Commissioner

Massachusetts Department of Elementary and Secondary Education
135 Santilli Highway, Everett, MA 02149-1950
Phone 781-338-3000 TTY: N.E.T. Relay 800-439-2370
www.doe.mass.edu

Overview of Grade 5 Mathematics Test

The spring 2026 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.

This document displays released items from the paper-based test. Released items from the computer-based test are available on the MCAS Resource Center website at mcas.onlinehelp.cognia.org/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 released and unreleased operational item: reporting category, standard(s) covered, item type, and item description. The correct answers for released selected-response and short-answer questions are also displayed in the released item table.

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.

MASSACHUSETTS
Department of Elementary and Secondary Education

Massachusetts 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
SESSION 1

This session contains 10 questions.

You may use your reference sheet during this session.
*You may **not** use a calculator during this session.*

Directions

Read each question carefully and then answer it as well as you can. You must record all answers in this Test & Answer Booklet.

For some questions, you will mark your answers by filling in the circles in your Test & Answer Booklet. Make sure you darken the circles completely. Do not make any marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

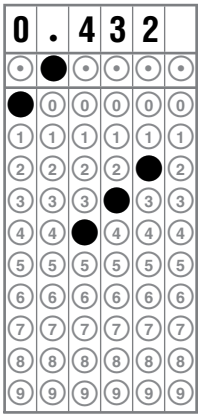
For other questions, you will need to fill in an answer grid. Directions for completing questions with answer grids are provided on the next page.

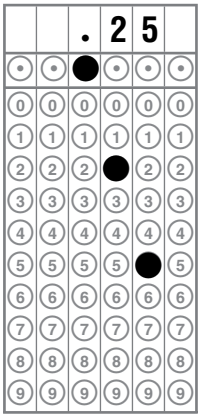
If a question asks you to show or explain your work, you must do so to receive full credit. Write your response in the space provided. Only responses written within the provided space will be scored.

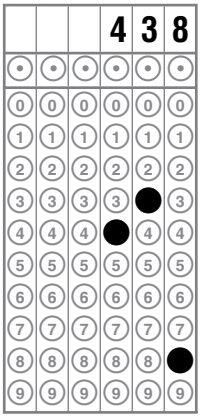
Directions for Completing Questions with Answer Grids

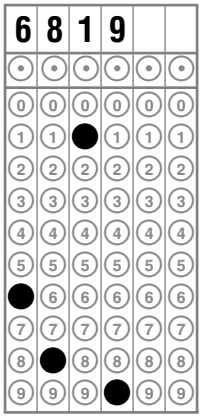
1. Work the question and find an answer.
2. Enter your answer in the answer boxes at the top of the answer grid.
3. Print only one number or symbol in each box. Do not leave a blank box in the middle of an answer.
4. Under each answer box, fill in the circle that matches the number or symbol you wrote above. Make a solid mark that completely fills the circle.
5. Do not fill in a circle under an unused answer box.
6. If you need to change an answer, be sure to erase your first answer completely.
7. See below for examples of how to correctly complete an answer grid.

Examples









1 Which of the following numbers is equivalent to 10^6?

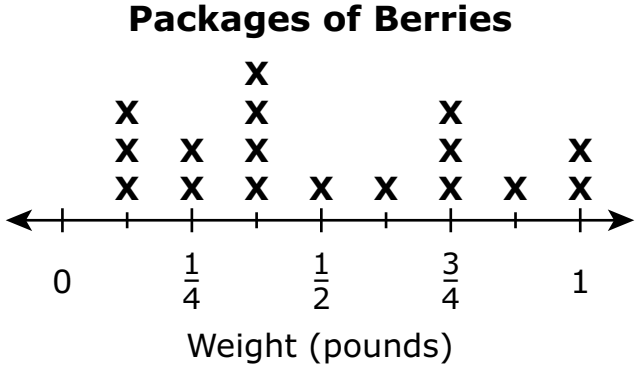
Ⓐ 10,000

Ⓑ 100,000

Ⓒ 1,000,000

Ⓓ 10,000,000

2 This line plot shows the weights, in pounds, of different packages of berries.



What is the **total** weight, in pounds, of all the packages of berries that weigh $\frac{5}{8}$ pound or more?

Ⓐ $\frac{23}{8}$

Ⓑ $\frac{41}{8}$

Ⓒ $\frac{46}{8}$

Ⓓ $\frac{50}{8}$

3 A student drew a triangle. All three sides of the triangle are the same length.

Which of these are mathematical names for the triangle the student drew?

Select the **two** correct answers.

Ⓐ acute

Ⓑ obtuse

Ⓒ right

Ⓓ scalene

Ⓔ equilateral

This question has three parts. Be sure to label each part of your response.

4 A. The rules for a number pattern, Pattern S, are listed in this box.

Pattern S

- To get from each number to the next, add 4.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern S?

B. The rules for a different number pattern, Pattern T, are listed in this box.

Pattern T

- To get from each number to the next, add 12.
- The first number in the pattern is 0.

What are the first **six** numbers in Pattern T?

C. The first number in Pattern S corresponds to the first number in Pattern T. The second number in Pattern S corresponds to the second number in Pattern T. This continues for all the numbers in the two patterns.

What is the relationship between all the corresponding numbers in the two patterns? Show or explain how you got your answer.

Write your answers on the next page.

4

5 An expression is shown.

$$4 \div \frac{1}{7}$$

What is the value of the expression?

Ⓐ $\frac{4}{28}$

Ⓑ $\frac{4}{7}$

Ⓒ 4

Ⓓ 28

6 An expression is shown.

$$30 - (16 \div 4) + 7$$

Which of the following is the expression written in word form?

Ⓐ Divide 16 by 4, then add 7, then subtract 30.

Ⓑ Subtract 16 from 30, then divide by 4, then add 7.

Ⓒ Subtract 16 from 30, then divide by the sum of 4 and 7.

Ⓓ Divide 16 by 4, then subtract the quotient from 30, then add 7.

7 Tony bought a bag of pumpkin seeds. He ate $\frac{1}{7}$ of the seeds in the bag and gave $\frac{1}{3}$ of the seeds in the bag to his friend.

Which of the following fractions is closest to the amount of seeds remaining in the bag?

Ⓐ $\frac{1}{2}$

Ⓑ $\frac{1}{3}$

Ⓒ $\frac{8}{10}$

Ⓓ $\frac{2}{21}$

This question has two parts.

8 Olivia spent time on Saturday and Sunday making a sign in the shape of a rectangle.

Part A

On Saturday, Olivia spent 6 hours making the sign. On Sunday, Olivia spent $\frac{1}{3}$ as many hours making the sign as she spent on Saturday making it.

What was the amount of time, in hours, Olivia spent making the sign on Sunday?

Ⓐ 2 hours

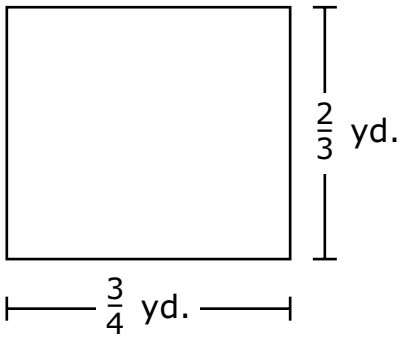
Ⓑ 3 hours

Ⓒ 6 hours

Ⓓ 18 hours

Part B

This diagram shows the length and the width, in yards (yd.), of the sign Olivia made.



What is the area, in square yards, of the sign Olivia made?

Ⓐ $\frac{5}{7}$

Ⓑ $\frac{9}{8}$

Ⓒ $\frac{6}{12}$

Ⓓ $\frac{17}{12}$

9 Which of the following equations are true?

Select the **two** correct answers.

Ⓐ $8.3 \times 4.5 = 3.735$

Ⓑ $8.3 \times 4.5 = 37.35$

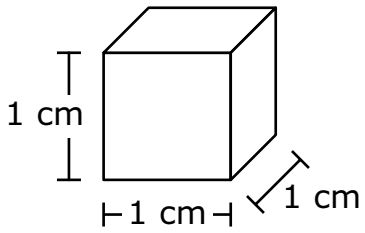
Ⓒ $8.3 \times 4.5 = 373.5$

Ⓓ $98.75 - 63.8 = 3.495$

Ⓔ $98.75 - 63.8 = 34.95$

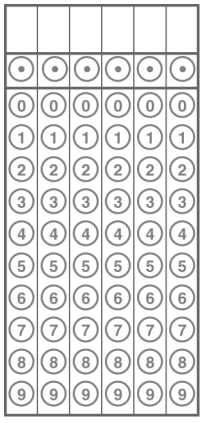
Ⓕ $98.75 - 63.8 = 349.5$

10 Cubes were used to build a prism with a volume of 9 cubic centimeters. Each cube had edge lengths of 1 centimeter (cm), as shown.



What is the total number of cubes that were used to build the prism?

Enter your answer in the answer boxes at the top of the answer grid **and** completely fill the matching circles.



Grade 5 Mathematics
SESSION 2

This session contains 10 questions.

You may use your reference sheet during this session.
*You may **not** use a calculator during this session.*

Directions

Read each question carefully and then answer it as well as you can. You must record all answers in this Test & Answer Booklet.

For some questions, you will mark your answers by filling in the circles in your Test & Answer Booklet. Make sure you darken the circles completely. Do not make any marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

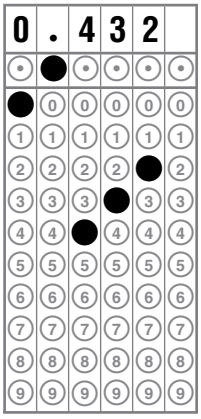
For other questions, you will need to fill in an answer grid. Directions for completing questions with answer grids are provided on the next page.

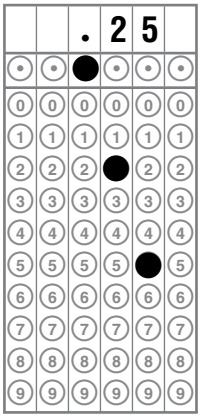
If a question asks you to show or explain your work, you must do so to receive full credit. Write your response in the space provided. Only responses written within the provided space will be scored.

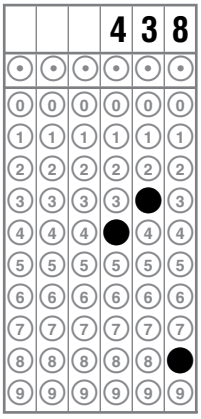
Directions for Completing Questions with Answer Grids

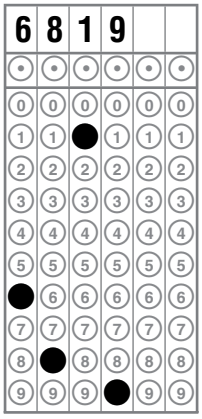
1. Work the question and find an answer.
2. Enter your answer in the answer boxes at the top of the answer grid.
3. Print only one number or symbol in each box. Do not leave a blank box in the middle of an answer.
4. Under each answer box, fill in the circle that matches the number or symbol you wrote above. Make a solid mark that completely fills the circle.
5. Do not fill in a circle under an unused answer box.
6. If you need to change an answer, be sure to erase your first answer completely.
7. See below for examples of how to correctly complete an answer grid.

Examples









11 A number is shown.

45.043

Which of the following is the number written in expanded form?

Ⓐ $\left(4 \times 10\right) + \left(5 \times 1\right) + \left(4 \times \frac{1}{100}\right) + \left(3 \times \frac{1}{1000}\right)$

Ⓑ $\left(4 \times 10\right) + \left(5 \times 1\right) + \left(4 \times \frac{1}{10}\right) + \left(3 \times \frac{1}{1000}\right)$

Ⓒ $\left(4 \times 10\right) + \left(5 \times 1\right) + \left(4 \times \frac{1}{10}\right) + \left(3 \times \frac{1}{100}\right)$

Ⓓ $\left(4 \times 10\right) + \left(5 \times 1\right) + \left(4 \times \frac{1}{1}\right) + \left(3 \times \frac{1}{10}\right)$

12 A worker at a repair shop says it will take 40 hours to repair a car.

- It will take the worker 6 days to repair the car.
- The worker will spend the same amount of time each day repairing the car.

What is the amount of time, in hours, the worker will spend **each** day repairing the car?

Ⓐ $3\frac{1}{3}$ hours

Ⓑ $5\frac{2}{3}$ hours

Ⓒ $6\frac{2}{3}$ hours

Ⓓ $7\frac{1}{3}$ hours

This question has four parts. Be sure to label each part of your response.

13 An artist bought pearls, rubies, and diamonds to make jewelry.

- The artist bought 1,295 pearls. The pearls cost $3 each.
- The artist bought 1,100 rubies. The rubies cost $11 each.
- The artist bought 205 diamonds. The diamonds cost $129 each.

A. What was the total amount, in dollars, that the artist spent on pearls? Show or explain how you got your answer.

B. What was the total amount, in dollars, that the artist spent on rubies? Show or explain how you got your answer.

C. What was the total amount, in dollars, that the artist spent on diamonds? Show or explain how you got your answer.

D. The artist had a budget and should have spent no more than a total of $45,000 on the pearls, rubies, and diamonds.

Is the total amount the artist spent on the pearls, rubies, and diamonds within the budget? Show or explain how you got your answer.

Write your answers on the next page.

13

14 An expression is shown.

$$5\frac{1}{2} \times \frac{5}{6}$$

Which of the following statements correctly describes the product of the expression?

Ⓐ The product will be less than $\frac{5}{6}$, because $\frac{5}{6}$ is less than 1.

Ⓑ The product will be less than $5\frac{1}{2}$, because $\frac{5}{6}$ is less than 1.

Ⓒ The product will be equal to $\frac{5}{6}$, because $5\frac{1}{2}$ is greater than 1.

Ⓓ The product will be greater than $5\frac{1}{2}$, because $5\frac{1}{2}$ is greater than 1.

15 A student plots a point on a coordinate plane using the ordered pair (2, 3).

What is the total number of units the student travels from the origin along the *x*-axis to plot the point?

Ⓐ 1 unit

Ⓑ 2 units

Ⓒ 3 units

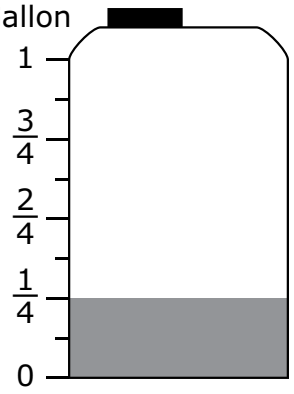
Ⓓ 5 units

16 A baker has 1 gallon of chocolate milk to make pudding for a party.

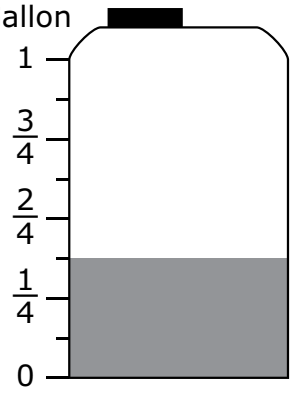
- He uses 3 **cups** of milk to make each batch of pudding.
- He makes 4 batches of pudding.

Which of the following shows the total amount of milk, in **gallons**, the baker has **remaining** after he makes the pudding?

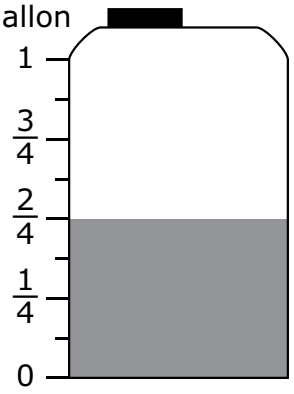
Ⓐ



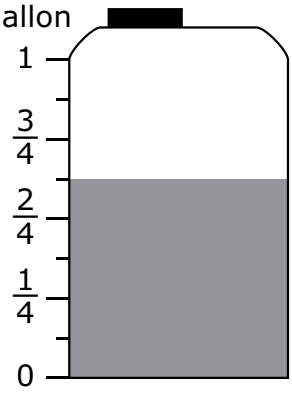
Ⓑ



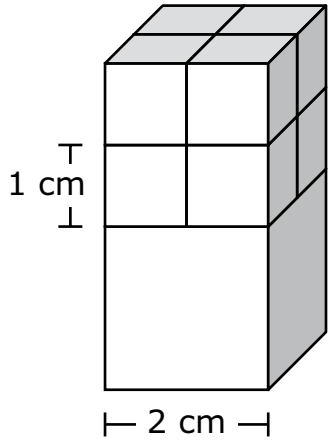
Ⓒ



Ⓓ



17 A right rectangular prism was made using eight small cubes and one large cube, as shown in this diagram.



In the diagram,

- each small cube has an edge length of 1 centimeter (cm), and
- the large cube has an edge length of 2 centimeters.

Which of the following sentences about the prism are true?

Select the **two** correct answers.

Ⓐ The large cube is equivalent to 8 small cubes.

Ⓑ The large cube is equivalent to 6 small cubes.

Ⓒ The large cube is equivalent to 4 small cubes.

Ⓓ The total volume of the prism is 22 cubic centimeters.

Ⓔ The total volume of the prism is 16 cubic centimeters.

Ⓕ The total volume of the prism is 12 cubic centimeters.

18 An expression is shown.

$$2\frac{3}{7} - \frac{2}{3}$$

What is the value of the expression?

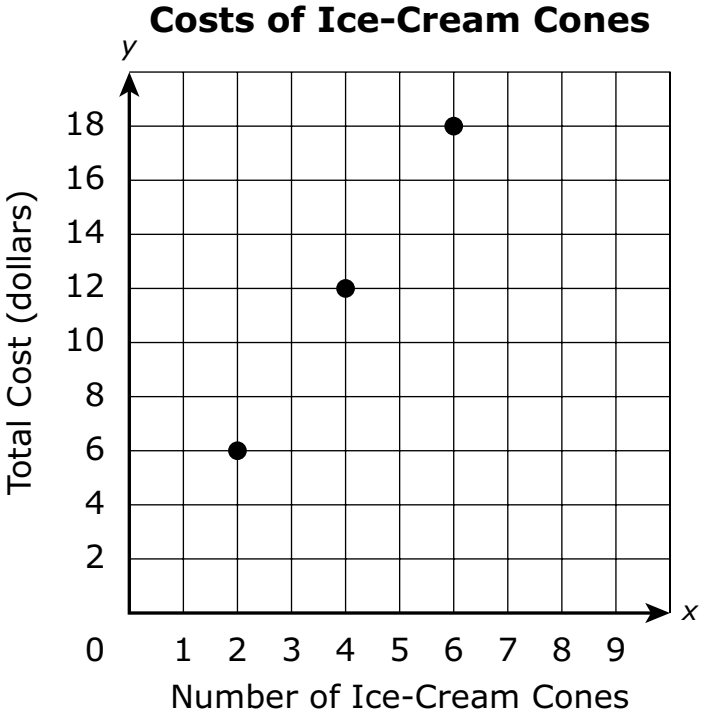
Ⓐ $\frac{16}{21}$

Ⓑ $\frac{26}{21}$

Ⓒ $\frac{37}{21}$

Ⓓ $\frac{47}{21}$

19 The relationship between x, the number of ice-cream cones purchased, and y, the total cost in dollars of the cones, is shown on this coordinate plane.



Based on the relationship shown on the coordinate plane, which statement is true?

Ⓐ The total cost of 6 ice-cream cones is $2.

Ⓑ The total cost of 4 ice-cream cones is $12.

Ⓒ The total cost of 18 ice-cream cones is $6.

Ⓓ The total cost of 12 ice-cream cones is $18.

20 A company receives an order for 5,220 T-shirts.

- The company ships the T-shirts in boxes.
- Each box will contain 36 T-shirts.

What is the total number of boxes needed to ship all the T-shirts for the order?

Ⓐ 145

Ⓑ 147

Ⓒ 155

Ⓓ 168

Grade 5 Mathematics
Spring 2026 Released Operational Items

PBT Item No.	Page No.	Reporting Category	Standard	Item Type*	Item Description	Correct Answer**
1	6	*Number and Operations in Base Ten*	5.NBT.A.2	SR	Determine which whole number is equivalent to a given power of ten.	C
2	6	*Measurement and Data*	5.MD.B.2	SR	Determine the sum of a group of fractions presented in a line plot.	C
3	7	*Geometry*	5.G.B.3	SR	Determine the mathematical names that can describe a specified triangle.	A,E
4	8	*Operations and Algebraic Thinking*	5.OA.B.3	CR	Extend two different addition patterns and explain the relationship between corresponding terms in the patterns.	
5	10	*Number and Operations-Fractions*	5.NF.B.7	SR	Determine the quotient of a whole number divided by a unit fraction.	D
6	10	*Operations and Algebraic Thinking*	5.OA.A.2	SR	Interpret a numerical expression with parentheses without evaluating it.	D
7	11	*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.	A
8	12	*Number and Operations-Fractions*	5.NF.B.4	SR	Determine the product of a whole number and a unit fraction and determine the area of a rectangle with fractional side lengths.	A;C
9	13	*Number and Operations in Base Ten*	5.NBT.B.7	SR	Use multiplication and subtraction with given decimals to tenths and hundredths.	B,E
10	13	*Measurement and Data*	5.MD.C.3	SA	Determine the number of unit cubes that are used to build a prism given the volume of the prism.	9
11	16	*Number and Operations in Base Ten*	5.NBT.A.3	SR	Determine the expanded form of a given decimal number to thousandths.	A
12	16	*Number and Operations-Fractions*	5.NF.B.3	SR	Solve a word problem involving division of two whole numbers with a mixed number quotient.	C
13	17	*Number and Operations in Base Ten*	5.NBT.B.5	CR	Solve a problem involving multiplying whole numbers including one-digit by four-digit, two-digit by four-digit, and three-digit by three-digit multiplication.	
14	19	*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.	B
15	19	*Geometry*	5.G.A.1	SR	Determine the distance along the *x*-axis between a point, represented by a given ordered pair, and the origin.	B
16	20	*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.	A
17	21	*Measurement and Data*	5.MD.C.3	SR	Determine the volume of a right rectangular prism filled with a specified number of cubes with a given edge length.	A,E

PBT Item No.	Page No.	Reporting Category	Standard	Item Type*	Item Description	Correct Answer**
18	22	*Number and Operations-Fractions*	5.NF.A.1	SR	Find the difference between a mixed number and a fraction.	C
19	23	*Geometry*	5.G.A.2	SR	Determine which interpretation of the *x*-coordinate and *y*-coordinate values of points plotted on a coordinate plane represent a real-world context.	B
20	24	*Number and Operations in Base Ten*	5.NBT.B.6	SR	Solve a word problem involving finding the quotient of a four-digit dividend and a two-digit divisor.	A

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

** Answers are provided here for selected-response and short-answer items only. Sample responses and scoring guidelines for any constructed-response items will be posted to the Department's website later this year.

Grade 5 Mathematics
Spring 2026 Unreleased Operational Items

PBT Item No.	Reporting Category	Standard	Item Type*	Item Description
21	*Measurement and Data*	5.MD.C.4	SR	Identify the figures that have a given volume by counting unit cubes.
22	*Operations and Algebraic Thinking*	5.OA.A.1	SR	Determine the location of parentheses that will make an expression equivalent to a given value.
23	*Number and Operations-Fractions*	5.NF.B.7	SR	Determine the equation with a variable that can be used to solve a given word problem involving dividing a unit fraction by a whole number.
24	*Number and Operations in Base Ten*	5.NBT.B.6	SR	Identify the division equation with a 4-digit dividend, a 1-digit divisor, and a variable quotient that can be used to solve a given word problem.
25	*Number and Operations in Base Ten*	5.NBT.A.4	SR	Round a decimal number to the nearest hundredth.
26	*Number and Operations-Fractions*	5.NF.B.5	SR	Given several expressions, determine whether the product of each expression is greater than or less than the value of a given factor of the expression.
27	*Measurement and Data*	5.MD.C.5	CR	Determine the volume of a right rectangular prism by filling it with cubes and showing that it is the same volume as multiplying the edge lengths, solve a real-world problem involving finding the possible width and height of a prism given the length and the volume, and explain how to find the total volume of a solid figure made up of two right rectangular prisms.
28	*Geometry*	5.G.A.2	SR	Identify which graph shows three points correctly plotted in the first quadrant of the coordinate plane.
29	*Number and Operations in Base Ten*	5.NBT.A.1	SR	Identify the number that contains a digit whose value is one-tenth the value of the same digit in another number.
30	*Number and Operations in Base Ten*	5.NBT.A.3	SR	Compare decimals to hundredths.
31	*Number and Operations in Base Ten*	5.NBT.B.7	SR	Solve a real-world problem by adding two decimal numbers to the hundredths.
32	*Number and Operations-Fractions*	5.NF.B.6	CR	Determine the product of two fractions; write and solve an equation to represent a given problem; and multiply fractions with fractions, mixed numbers, or whole numbers to solve real-world problems.
33	*Number and Operations in Base Ten*	5.NBT.A.1	SR	Determine the relationship of the value of a digit in a decimal number compared to the value of that digit in another decimal number.
34	*Measurement and Data*	5.MD.C.4	SA	Determine the volume of a right rectangular prism by counting the unit cubes that make up the prism.
35	*Operations and Algebraic Thinking*	5.OA.A.1	SA	Evaluate an expression that includes a set of parentheses.
36	*Operations and Algebraic Thinking*	5.OA.A.2	SR	Identify a word expression that is equivalent to a given numerical expression that has parentheses.
37	*Number and Operations in Base Ten*	5.NBT.A.2	SR	Determine which product of a whole number multiplied by a power of 10 is equivalent to a given number.
38	*Geometry*	5.G.B.4	SR	Classify a triangle based on its given side lengths and identify true statements about one type of triangle.

PBT Item No.	Reporting Category	Standard	Item Type*	Item Description
39	*Number and Operations-Fractions*	5.NF.B.7	SR	Find the quotient of a fraction and a whole number in a real-world context.
40	*Number and Operations in Base Ten*	5.NBT.A.4	SR	Round a given decimal number in thousandths to the nearest tenth.

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