

Computer-Based Released Items

Grade 7 MCAS Mathematics

Spring 2025

The spring 2025 grade 7 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.

The Department of Elementary and Secondary Education is releasing items from both versions of the test to provide information about the knowledge and skills that students are expected to demonstrate.

- Released items from the **computer-based test** are available online at mcas.onlinehelp.cognia.org/released-items.
- Released items from the **paper-based test** are available in PDF format on the Department's website at www.doe.mass.edu/mcas/release.html.

This document provides information about each released item from the *computer-based test*, including the following: reporting category, standard covered, item type, item description, and correct answer (for selected-response and short-answer items only). This information is also provided for unreleased operational items. Sample responses and scoring guidelines for constructed-response items will be posted at www.doe.mass.edu/mcas/student/.

A Note about Testing Mode

Most of the operational items on the grade 7 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 or multiple-select items that tested the same Mathematics content and assessed the same standard as the technology-enhanced item.

Grade 7 Mathematics
Spring 2025 Computer-Based Released Operational Items

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description	Correct Answer (SR)**
1	Geometry	7.G.B.4	SR	Determine the distance between the center of a circle and a point drawn on the circle, given its radius.	D
2	Ratios and Proportional Relationships	7.RP.A.2	SR	Determine which table represents a proportional relationship between two quantities.	D
3	The Number System	7.NS.A.2	SR	Determine which expression is equivalent to a given expression.	D
4	Expressions and Equations	7.EE.B.4	SR	Extend a simple pattern when given a rule.	B
5	Statistics and Probability	7.SP.C.8	CR	Find the probability of a compound event using a tree diagram and simulation, and make an organized list based on the simulation.	
6	The Number System	7.NS.A.1	SA	Determine the solution of an equation involving subtraction of two rational numbers and plot the solution on a number line.	see page 6
7	Expressions and Equations	7.EE.B.3	SA	Solve a multi-step, real-world problem involving fractions, decimals, and percentages.	see page 6
8	Ratios and Proportional Relationships	7.RP.A.1	SR	Determine the unit rate associated with a given ratio of fractions in a real-world context.	D
9	Ratios and Proportional Relationships	7.RP.A.1	SR	Determine the unit rates associated with ratios of fractions in a real-world context.	see page 7
10	The Number System	7.NS.A.2	SR	Determine which expressions are equivalent to a given expression.	B,C,F
11	Ratios and Proportional Relationships	7.RP.A.2	SR	Interpret the proportional relationship shown in a graph.	C
12	Expressions and Equations	7.EE.A.2	SR	Determine which expression represents a given real-world context.	B
13	Statistics and Probability	7.SP.A.1	SR	Determine which sampling strategy will produce a sample that is valid to represent a specific population.	A
14	Expressions and Equations	7.EE.A.1	SR	Determine which expression is equivalent to a given expression.	see page 7
15	The Number System	7.NS.A.3	SR	Solve a multi-step, real-world problem by converting units.	B
16	Expressions and Equations	7.EE.B.4	SR	Determine which inequality in the form $px + q$ less than or equal to r can be used to represent a problem.	C
17	Geometry	7.G.A.1	CR	Identify and apply a scale to determine the dimensions and areas of rectangles given in a real-world context.	
18	Statistics and Probability	7.SP.A.2	SR	Given a random sample from a population, predict the distribution of the responses in a different sample.	C

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description	Correct Answer (SR)**
19	<i>The Number System</i>	7.NS.A.3	SA	Solve a real-world problem involving the four operations.	<i>see page 7</i>
20	<i>Ratios and Proportional Relationships</i>	7.RP.A.3	SR	Solve a multi-step, real-world problem involving percent increase.	<i>see page 7</i>

* 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. Pages 6–7 of this document provide correct answers for technology-enhanced (TE) items. Sample responses and scoring guidelines for constructed-response items will be posted at

www.doe.mass.edu/mcas/student/default.html.

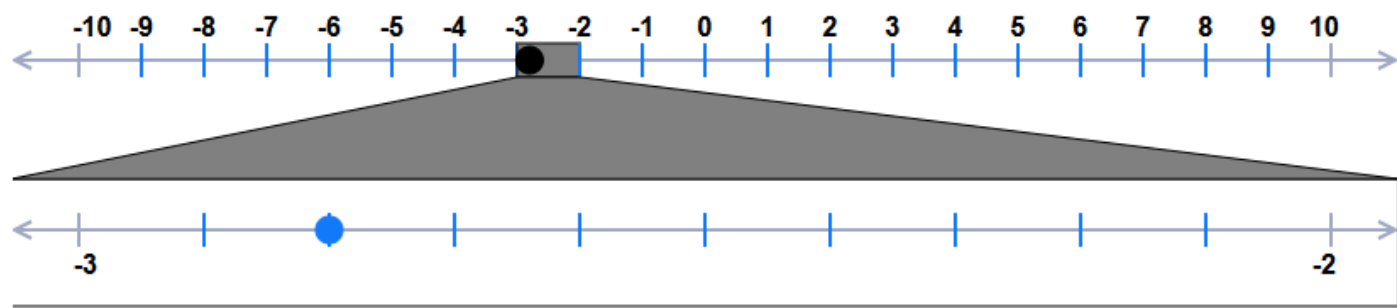
Grade 7 Mathematics
Spring 2025 Computer-Based Unreleased Operational Items

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
21	<i>The Number System</i>	7.NS.A.2	SR	Determine whether the products of positive and negative rational numbers have positive or negative values.
22	<i>Expressions and Equations</i>	7.EE.A.1	SR	Determine which expression is equivalent to a given expression.
23	<i>The Number System</i>	7.NS.A.1	CR	Apply properties of operations to add and subtract rational numbers in a mathematical context.
24	<i>Ratios and Proportional Relationships</i>	7.RP.A.2	SA	Determine the constant of proportionality given a table of values.
25	<i>Expressions and Equations</i>	7.EE.A.2	SR	Determine which equivalent expression can be used to represent a real- world problem.
26	<i>Ratios and Proportional Relationships</i>	7.RP.A.1	SR	Determine the unit rate associated with ratios of fractions and use the unit rate to solve a real-world problem.
27	<i>Ratios and Proportional Relationships</i>	7.RP.A.3	SR	Use proportional and ratio reasoning to solve a problem using distance as a context.
28	<i>Statistics and Probability</i>	7.SP.B.3	SR	Express the difference between two means in terms of the mean absolute deviation.
29	<i>Expressions and Equations</i>	7.EE.A.2	SR	Determine which expressions could represent a given real-world context.
30	<i>The Number System</i>	7.NS.A.3	SR	Determine which expression is equivalent to a given expression.
31	<i>Statistics and Probability</i>	7.SP.C.5	SR	Determine how likely an event is to occur given the probability of the event.
32	<i>Statistics and Probability</i>	7.SP.C.6	SR	Determine the probability of a chance event and predict the approximate relative frequency of that event given the probability.
33	<i>Expressions and Equations</i>	7.EE.B.3	CR	Solve multi-step, real-life problems posed with rational numbers including fractions, percents, and integers.
34	<i>Geometry</i>	7.G.B.5	SR	Determine which equations represent a multi-step problem by using facts about supplementary and complementary angles.
35	<i>Statistics and Probability</i>	7.SP.B.4	SR	Given two numerical data sets in a double box plot, compare the medians and the interquartile ranges of the data sets.
36	<i>Ratios and Proportional Relationships</i>	7.RP.A.2	SA	Interpret the proportional relationship shown in a graph, use it to create an equation, and solve a problem.
37	<i>Geometry</i>	7.G.A.3	SR	Describe the direction of the slices of a right rectangular pyramid that will result in a series of two-dimensional faces.

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
38	<i>Geometry</i>	7.G.A.2	SR	Determine whether each given set of angle measurements could be the angle measures of a triangle.
39	<i>Statistics and Probability</i>	7.SP.C.7	SR	Determine the probability of events using a uniform probability model.
40	<i>Ratios and Proportional Relationships</i>	7.RP.A.3	SR	Solve a multi-step, real-world problem involving percent increase.

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

Correct Answer for CBT Item #6: Technology-Enhanced Item



Correct Answer for CBT Item #7: Technology-Enhanced Item

Part A

$1\frac{1}{8}$

OR

1.125

Part B

Amount	Correct	Incorrect
$1\frac{1}{2}$ cups raisins	☒	☐
1 cup almonds	☒	☐
$\frac{2}{3}$ cup chocolate chips	☐	☒

Correct Answer for CBT Item #9: Technology-Enhanced Item

Monday	Wednesday	Friday
$5\frac{1}{4}$ mph	$4\frac{1}{5}$ mph	$3\frac{1}{2}$ mph

Correct Answer for CBT Item #14: Technology-Enhanced Item

$-8x + 2$	$-8x + 4$	$8x - 2$	$8x - 4$
$2(-4x + 1)$	$-4(2x - 1)$	$3x + (5x - 2)$	$-4(-2x + 1)$

Correct Answer for CBT Item #19: Technology-Enhanced Item

60	60%
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Correct Answer for CBT Item #20: Technology-Enhanced Item

It cost Lucas \$22 to make the dress, so he will sell the dress for .

Lucas will sell the jacket for \$44.80, because it cost him to make the jacket.