

## **Computer-Based Released Items**

### **Grade 6 Mathematics**

### **Spring 2022**

The spring 2022 grade 6 Mathematics test was administered in two primary formats: a computer-based version and a paper-based version. The vast majority of students took the computer-based test. The paper-based test was offered as an accommodation for students with disabilities who are unable to use a computer, as well as for English learners who are new to the country and are unfamiliar with technology.

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.pearsonsupport.com/released-items](https://mcas.pearsonsupport.com/released-items). The computer-based released items are collected in a mini test called an ePAT (electronic practice assessment tool). Items in the ePAT are displayed in TestNav 8, the testing platform for the computer-based tests.
- Released items from the **paper-based test** are available in PDF format on the Department’s website at [www.doe.mass.edu/mcas/testitems.html](http://www.doe.mass.edu/mcas/testitems.html).

This document provides information about each released item from the *computer-based test*, including: reporting category, standard(s) covered, item type, item description, and correct answer (for selected-response and short-answer items only). Information about unreleased operational items is also presented here.

### **A Note about Testing Mode**

Most of the operational items on the grade 6 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.

**Grade 6 Mathematics**  
**Spring 2021 Computer-Based Released Operational Items**

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description	Correct Answer**
1	Ratios and Proportional Relationships	6.RP.A.3	SA	Use the unit rate from a table to solve a real-world problem involving ratios.	35
2	Geometry	6.G.A.3	SA	Graph a quadrilateral given the coordinates of the vertices.	<i>see page 6</i>
3	Ratios and Proportional Relationships	6.RP.A.1	SR	Determine which part/part or part/whole ratios represent a given real-world situation.	A,D
4	Statistics and Probability	6.SP.B.5	CR	Given a dot plot representing a real-world context, answer questions related to measures of center and distribution of the data.	
5	The Number System	6.NS.C.6	SR	Identify two ordered pairs represented on a coordinate plane.	B,E
6	Expressions and Equations	6.EE.B.8	SR	Identify the inequality that represents a constraint within a real-world context.	C
7	Geometry	6.G.A.1	SR	Find the area of a figure by decomposing it into triangles and rectangles.	D
8	Expressions and Equations	6.EE.A.1	SA	Evaluate a numerical expression with exponents, using order of operations.	26
9	Ratios and Proportional Relationships	6.RP.A.2	SR	Determine unit rates in a real-world situation.	<i>see page 6</i>
10	Expressions and Equations	6.EE.B.6	SR	Determine which mathematical expression can be used to represent a given situation with a real-world context.	D
11	The Number System	6.NS.C.6	SR	Determine which numbers are on opposite sides of zero on a number line.	C
12	Expressions and Equations	6.EE.C.9	SR	Given the value of one variable, determine the value of another variable by analyzing the relationship of data shown on a coordinate plane.	B
13	Ratios and Proportional Relationships	6.RP.A.1	SR	Determine which statement describes a given ratio relationship in a real-world context.	C

14	Expressions and Equations	6.EE.A.2	CR	Write expressions using substitution and use the expressions to solve real-world problems.	
15	The Number System	6.NS.B.3	SR	Determine whether the given division equations involving multi-digit decimals are correct or not correct.	<i>see page 6</i>
16	The Number System	6.NS.A.1	SA	Solve a word problem with real-world context using division of mixed numbers by mixed numbers.	9
17	Ratios and Proportional Relationships	6.RP.A.3	SR	Use ratio reasoning to convert between customary and metric measurement units in a real-world context.	Part A: B Part B: <i>see page 7</i>
18	The Number System	6.NS.C.7	SR	Order absolute value expressions from least to greatest value.	<i>see page 7</i>
19	Statistics and Probability	6.SP.A.3	SR	Recognize measures of center for a real-world situation.	A,B,D
20	Geometry	6.G.A.4	SA	Use the net of a rectangular prism to find its surface area.	168

\* 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 and 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](http://www.doe.mass.edu/mcas/student/default.html).

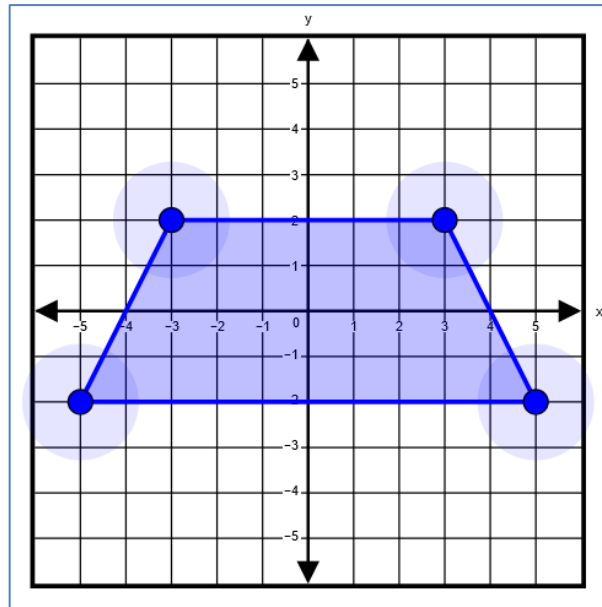
**Grade 6 Mathematics**  
**Spring 2021 Computer-Based Unreleased Operational Items**

<b>CBT Item No.</b>	<b>Reporting Category</b>	<b>Standard</b>	<b>Item Type*</b>	<b>Item Description</b>
21	The Number System	6.NS.C.7	SA	Find the absolute value of a number.
22	Ratios and Proportional Relationships	6.RP.A.3	SR	Solve a ratio problem using conversion of units within a measurement system.
23	Ratios and Proportional Relationships	6.RP.A.2	SR	Determine the unit cost in a real-world situation.
24	Statistics and Probability	6.SP.A.2	SR	Determine the mean and the mode of a given data set.
25	Ratios and Proportional Relationships	6.RP.A.1	SR	Given descriptions of real-world situations, determine whether the situations can be represented by part/part or part/whole ratios.
26	Geometry	6.G.A.2	CR	Solve a real-world problem involving volumes of right rectangular prisms.
27	The Number System	6.NS.B.2	SA	Determine the quotient of a four-digit dividend and a two-digit divisor.
28	Expressions and Equations	6.EE.B.7	SA	Determine the correct equation to model a real-world scenario, and use that equation to solve a real-world problem.
29	Statistics and Probability	6.SP.A.1	SR	Determine which questions are statistical questions.
30	Statistics and Probability	6.SP.B.4	SR	Identify the box plot that represents a set of data.
31	Expressions and Equations	6.EE.A.1	SR	Represent the value of a given number as an expression with a whole-number exponent.
32	Geometry	6.G.A.1	SR	Find the area of a composite figure.
33	Expressions and Equations	6.EE.A.2	SR	Identify the parts of a mathematical expression and evaluate the expression for a specific value.
34	Ratios and Proportional Relationships	6.RP.A.3	SR	Solve a unit rate problem based on a given real-world context.

35	The Number System	6.NS.B.4	CR	Use the greatest common factor and least common multiple to solve a real-world problem.
36	Ratios and Proportional Relationships	6.RP.A.3	SR	Use rate reasoning to solve a real-world problem involving fractions.
37	Expressions and Equations	6.EE.B.5	SR	Given a real-world context, find the possible values of the variable in an inequality.
38	Expressions and Equations	6.EE.A.3	SR	Use the properties of operations to factor an expression into an equivalent expression.
39	Expressions and Equations	6.EE.A.4	SR	Given an expression, select an equivalent expression.
40	Expressions and Equations	6.EE.A.4	SR	Determine which expression is equivalent to a given expression.

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

**Correct Answer for CBT Item #2: Technology-Enhanced Item**



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

In 1999, the unit rate was  per stamp.

In 2018, the unit rate was  per stamp.

**Correct Answer for CBT Item #15: Technology-Enhanced Item**

Equation	True	False
$0.34 + 5.2 = 8.6$	<input type="radio"/>	<input checked="" type="radio"/>
$0.56 \div 0.07 = 8$	<input checked="" type="radio"/>	<input type="radio"/>
$0.12 \times 0.3 = 0.36$	<input type="radio"/>	<input checked="" type="radio"/>

**Correct Answer for CBT Item #17: Technology-Enhanced Item**

Part B:

The second piece of wire has a length of approximately   .

**Correct Answer for CBT Item #18: Technology-Enhanced Item**

<b>Least</b>			<b>Greatest</b>
<input type="text" value=" 1 "/>	<input type="text" value=" \frac{5}{4} "/>	<input type="text" value=" -2 "/>	<input type="text" value=" -4 "/>