

Computer-Based Released Items

Grade 8 Mathematics

Spring 2023

The spring 2023 grade 8 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.

The Department of 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 ricas.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.ride.ri.gov/InstructionAssessment/Assessment/ReleasedItemsPracticeTests.aspx

This document provides information about each released item from the *computer-based test*, including the following: reporting category, standard(s) covered, item type, item description, and correct answer (for released selected-response 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 8 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 8 Mathematics
Spring 2023 Computer-Based Released Operational Items

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description	Correct Answer**
1	The Number System and Expressions and Equations	8.EE.C.7	SR	Solve a linear equation by collecting like terms.	C
2	Geometry	8.G.C.9	SR	Find the volume of a cylinder given its diameter and height.	C
3	Geometry	8.G.A.2	SR	Given several transformations on a triangle, determine whether the resulting images are congruent to the original figure.	<i>see page 5</i>
4	The Number System and Expressions and Equations	8.NS.A.2	SR	Approximate the value of a square root by showing how to find its location on a number line.	<i>see page 5</i>
5	Functions	8.F.B.4	CR	Use the linear relationship represented in a table to determine the y-intercept and slope; to write the equation of the line; and to determine whether a given point falls on the line.	
6	The Number System and Expressions and Equations	8.EE.A.4	SR	Solve a real-world problem that involves performing operations on two numbers expressed in scientific notation.	B
7	The Number System and Expressions and Equations	8.EE.C.8	SR	Determine the number of solutions to a system of equations.	A
8	The Number System and Expressions and Equations	8.EE.A.1	SR	Apply the properties of negative integer bases and exponents to identify the signed values of expressions.	C
9	The Number System and Expressions and Equations	8.NS.A.1	SR	Match decimal expansions with their fraction equivalents.	<i>see page 5</i>
10	The Number System and Expressions and Equations	8.EE.A.2	SR	Evaluate the cube root of a small perfect cube.	A
11	The Number System and Expressions and Equations	8.EE.B.5	SR	Determine which graph represents a proportional relationship in a real-world context.	A
12	Geometry	8.G.B.7	SR	Use the Pythagorean theorem to find the missing side length of a right triangle in a real-world problem.	B
13	Statistics and Probability	8.SP.A.1	CR	Given a scatter plot, determine if there are outliers in the data, describe the association represented by the data, and make a prediction based on the data.	
14	Geometry	8.G.B.6	SR	Given the lengths of two sides of a right triangle, determine the possible length of the third side by using the Pythagorean Theorem.	B,C
15	The Number System and Expressions and Equations	8.EE.C.8	SA	Create two linear equations, each involving the same two variables, to solve a real-world problem.	270
16	Geometry	8.G.A.1	SA	Determine the length of a line segment after a series of transformations.	8
17	Geometry	8.G.B.8	SA	Use the Pythagorean Theorem to create an equation to represent the length of a line segment that is graphed on a coordinate plane.	<i>see page 5</i>
18	Geometry	8.G.A.5	SR	Determine the angle measures of a triangle that is congruent to a given triangle.	<i>see page 5</i>
19	Functions	8.F.A.3	SR	Interpret the equation $y=mx+b$, and decide whether given functions are linear or not linear.	Part A: C Part B: B,D

20	Geometry	8.G.A.3	SR	Determine the coordinates of the image of a vertex of a quadrilateral after it has been rotated about the origin.	A
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* 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. Page 5 of this document provides correct answers for technology-enhanced (TE) items. Sample responses and scoring guidelines for constructed-response items will be posted to the Department's website later this year.

Grade 8 Mathematics
Spring 2023 Computer-Based Unreleased Operational Items

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
21	The Number System and Expressions and Equations	8.NS.A.2	SR	Determine between which pair of integers the square root of a given number lies.
22	Statistics and Probability	8.SP.A.3	SA	Use the equation of a linear model derived from data to solve a real-world problem.
23	The Number System and Expressions and Equations	8.EE.A.1	CR	Use the properties of exponents to find equivalent expressions.
24	The Number System and Expressions and Equations	8.NS.A.1	SR	Identify an irrational number from a list of numbers.
25	The Number System and Expressions and Equations	8.EE.C.8	SR	Determine the coordinates of the solution of a system of equations.
26	The Number System and Expressions and Equations	8.EE.A.1	SR	Use the properties of exponents to identify equivalent expressions.
27	The Number System and Expressions and Equations	8.EE.B.5	SR	Interpret a proportional relationship on a graph, and identify and interpret the slope of the graph.
28	The Number System and Expressions and Equations	8.EE.A.2	SR	Classify radical expressions as rational or irrational numbers.
29	Geometry	8.G.A.1	SA	Determine the effects of a translation and a rotation on the angles and sides of a quadrilateral.
30	The Number System and Expressions and Equations	8.NS.A.1	SR	Identify rational numbers from a list of radical expressions.
31	Functions	8.F.B.4	SR	Use the linear relationship represented in a table of values to solve a real-world problem that involves determining the y-value for a given x-value.
32	Statistics and Probability	8.SP.A.3	SR	Use the equation of a linear model derived from data to solve a real-world problem.
33	Statistics and Probability	8.SP.A.2	SR	Justify why a line drawn through data on a scatter plot is suitable as a line of best fit.
34	Functions	8.F.B.4	SR	Given a real-world context, interpret the rate of change from an equation.
35	Geometry	8.G.A.1	CR	Given a polygon and its image after a transformation, verify congruence by analyzing properties of both polygons; describe a series of transformations that would result in the same image of the polygon.
36	Functions	8.F.A.1	SA	Given a set of points on a coordinate plane, determine which point should be removed in order to create a function.
37	Functions	8.F.A.1	SR	Determine which set of coordinate pairs represents a function.
38	Functions	8.F.A.2	SR	Compare properties of two functions represented algebraically and in a table, and interpret each function's rate of change and initial value.
39	Geometry	8.G.C.9	SA	Find the volume of a sphere given its radius.
40	Geometry	8.G.A.4	SR	Given several transformations of a figure, determine whether the image created by each transformation is congruent or similar but not congruent to the original figure.

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

Correct Answer for CBT Item #3: Technology-Enhanced Item

Sequence of Transformations on Triangle ABC	Congruent to Triangle ABC	Not Congruent to Triangle ABC
translate 4 units to the right, and then reflect over the y -axis	<input checked="" type="radio"/>	<input type="radio"/>
rotate 180° clockwise about the origin, and then dilate by a scale factor of 3 with the center at the origin	<input type="radio"/>	<input checked="" type="radio"/>
rotate 90° counterclockwise about the origin, and then reflect over the line $y = x$	<input checked="" type="radio"/>	<input type="radio"/>

Correct Answer for CBT Item #4: Technology-Enhanced Item

On a number line, the expression is located between . The approximate value of the expression is closest to .

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

$\frac{11}{15}$	$\frac{8}{11}$	$\frac{26}{33}$
<input type="text" value="0.73"/>	<input type="text" value="0.72"/>	<input type="text" value="0.78"/>

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

$$\boxed{4}^2 + \boxed{5}^2 = \boxed{k}^2$$

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

$$\begin{aligned} m\angle R &= \boxed{42}^\circ \\ m\angle S &= \boxed{96}^\circ \\ m\angle T &= \boxed{42}^\circ \end{aligned}$$