MASSACHUSETTS DEPARTMENT OF
ELEMENTARY AND SECONDARY
EDUCATION

Release of MCAS Test Information from the March 2023 ELA and Math Retests

March 2023
Massachusetts Department of
Elementary and Secondary Education

MASSACHUSETTS DEPARTMENT OF
ELEMENTARY AND SECONDARY
EDUCATION

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I. Document Purpose and Structure

Document Purpose and Structure

Purpose

The purpose of this document is to share with educators and the public information regarding the March 2023 MCAS English Language Arts (ELA) and Mathematics retests, including the reporting category and standard associated with each item. The Department does not currently release items from the March retests. All items continue to be released for the spring grade 10 tests.

Structure

Chapters II and III of this document contain, respectively, information for the March 2023 ELA and Mathematics retests. Each of these chapters has two sections.

The **first section** provides a brief overview of the retest, including test format and item types. The Mathematics Reference Sheet used by students during MCAS Mathematics test sessions appears at the end of the first section of the Mathematics chapter.

The **second section** of each chapter are tables that cross-reference each item on the computer-based test and the paper-based test with its MCAS reporting category and with the *Framework* standard it assesses. The tables show how the items on the test assess standards in the 2017 frameworks.

II. English Language Arts Retest

English Language Arts Retest

The March 2023 next-generation English Language Arts retest was administered in two primary 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 tables at the end of this chapter provide information about each item from both the computer-based and paper-based tests, including reporting category, standard(s) covered, item type, and item description.

A Note about Testing Mode

Most of the operational items on the computer-based and paper-based versions of the next-generation ELA retest were the same. 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 ELA content and assessed the same standard as the technology-enhanced item.

Test Sessions and Content Overview

The next-generation ELA retest was made up of two separate test sessions. Each session included reading passages, followed by selected-response and essay 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 next-generation ELA retest was based on grades 6–12 learning standards in three content strands of the *Massachusetts Curriculum Framework for English Language Arts and Literacy* (2017), listed below.

- Reading
- Writing
- Language

The Massachusetts Curriculum Framework for English Language Arts and Literacy is available on the Department website at www.doe.mass.edu/frameworks/current.html.

ELA test results are reported under three MCAS reporting categories, which are identical to the three framework content strands listed above.

Reference Materials

During both ELA test sessions, the use of bilingual word-to-word dictionaries was allowed for current and former English learner students only. No other reference materials were allowed during any ELA test session.

March 2023 English Language Arts Retest
Computer-Based Operational Items

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
1	*Reading*	RL.9-10.1	SR	Make an inference about setting based on a sentence of an excerpt.
2	*Reading*	RL.9-10.3	SR	Make an inference about characters based on details in a specific section of an excerpt and determine how this inference contributes to the excerpt.
3	*Language*	L.9-10.4	SR	Determine the context for an unfamiliar word in an excerpt.
4	*Reading*	RL.9-10.3	SR	Make an inference about a character based on details in a specific paragraph of an excerpt.
5	*Reading*	RL.9-10.3	SR	Make an inference about a character based on details in a specific section of an excerpt.
6	*Reading*	RL.9-10.2	SR	Identify a central idea developed in two excerpts on similar topics based on specific details from both of the excerpts.
7	*Reading*	RL.9-10.1	SR	Make an inference about a character based on a specific sentence of an excerpt and identify a sentence from an excerpt on a similar topic that suggests a similar interpretation for a different character.
8	*Reading*	RL.9-10.5	SR	Match specific details from two excerpts on similar topics with the effect they help to create.
9	*Language, Writing*	L.9-10.1, L.9-10.2, L.9-10.3, W.9-10.2, W.9-10.4	ES	Write an essay that explains how characters' actions reveal their character traits in two excerpts on similar topics; use details from both excerpts for support.
10	*Reading*	RL.9-10.3	SR	Determine what a specific paragraph of an excerpt reveals about a character.
11	*Reading*	RL.9-10.4	SR	Determine the purpose of figurative language in a specific paragraph of an excerpt.
12	*Reading*	RL.9-10.1	SR	Make an inference about a character based on specific details in an excerpt.
13	*Reading*	RL.9-10.4	SR	Analyze how the mood shifts in specific paragraphs of an excerpt.
14	*Reading*	RI.9-10.5	SR	Identify the purpose of a specific sentence in an article.
15	*Language*	L.9-10.4	SR	Determine a replacement for an unfamiliar word in an article.
16	*Language*	L.9-10.2	SR	Determine the purpose of a dash in a sentence of an article.
17	*Reading*	RI.9-10.3	SR	Identify the relationship between ideas addressed in an article.
18	*Reading*	RI.9-10.8	SR	Identify a detail from an article that supports an idea similar to a detail in another article on a similar topic.
19	*Reading*	RI.9-10.6	SR	Determine the shared view point of authors in three articles on similar topics.
20	*Reading*	RI.9-10.1	SR	Analyze specific sentences in an article to determine a shift in perspective and select a sentence from another article on a similar topic that supports a similar shift.
21	*Reading*	RI.9-10.3	SR	Compare the use of evidence in three articles on similar topics.

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
22	*Language, Writing*	L.9-10.1, L.9-10.2, L.9-10.3, W.9-10.2, W.9-10.4	ES	Write an essay explaining an aspect of a topic addressed in three articles; use evidence from all three articles for support.
23	*Reading*	RL.9-10.3	SR	Analyze what specific paragraphs in an excerpt demonstrate about a character.
24	*Language*	L.9-10.4	SR	Determine the meaning of an unknown word based on context.
25	*Reading*	RL.9-10.4	SR	Determine how specific words contribute to meaning and characterization in an excerpt.
26	*Reading*	RL.9-10.4	SR	Identify the mood created by details in a specific sentence of an excerpt.
27	*Reading*	RL.9-10.4	SR	Determine how a specific phrase contributes to meaning and characterization in an excerpt.
28	*Language*	L.9-10.4	SR	Determine the meaning of an unknown word based on context.
29	*Reading*	RL.9-10.3	SR	Identify characterization in an excerpt and select details that support that characterization.
30	*Reading*	RL.9-10.3	SR	Select details from a section of an excerpt that indicate a particular effect on a character.

* ELA item types are selected-response (SR) and essay (ES).

March 2023 English Language Arts Retest
Paper-Based Operational Items

PBT Item No.	Reporting Category	Standard	Item Type*	Item Description
1	*Reading*	RL.9-10.1	SR	Make an inference about setting based on a sentence of an excerpt.
2	*Reading*	RL.9-10.3	SR	Make an inference about characters based on details in a specific section of an excerpt and determine how this inference contributes to the excerpt.
3	*Language*	L.9-10.4	SR	Determine the context for an unfamiliar word in an excerpt.
4	*Reading*	RL.9-10.3	SR	Make an inference about a character based on details in a specific paragraph of an excerpt.
5	*Reading*	RL.9-10.3	SR	Make an inference about a character based on details in a specific section of an excerpt.
6	*Reading*	RL.9-10.2	SR	Identify a central idea developed in two excerpts on similar topics based on specific details from both of the excerpts.
7	*Reading*	RL.9-10.1	SR	Make an inference about a character based on a specific sentence of an excerpt and identify a sentence from an excerpt on a similar topic that suggests a similar interpretation for a different character.
8	*Reading*	RL.9-10.5	SR	Match specific details from two excerpts on similar topics with the effect they help to create.
9	*Language, Writing*	L.9-10.1, L.9-10.2, L.9-10.3, W.9-10.2, W.9-10.4	ES	Write an essay that explains how characters' actions reveal their character traits in two excerpts on similar topics; use details from both excerpts for support.
10	*Reading*	RL.9-10.3	SR	Determine what a specific paragraph of an excerpt reveals about a character.
11	*Reading*	RL.9-10.4	SR	Determine the purpose of figurative language in a specific paragraph of an excerpt.
12	*Reading*	RL.9-10.1	SR	Make an inference about a character based on specific details in an excerpt.
13	*Reading*	RL.9-10.4	SR	Analyze how the mood shifts in specific paragraphs of an excerpt.
14	*Reading*	RI.9-10.5	SR	Identify the purpose of a specific sentence in an article.
15	*Language*	L.9-10.4	SR	Determine a replacement for an unfamiliar word in an article.
16	*Language*	L.9-10.2	SR	Determine the purpose of a dash in a sentence of an article.
17	*Reading*	RI.9-10.3	SR	Identify the relationship between ideas addressed in an article.
18	*Reading*	RI.9-10.8	SR	Identify a detail from an article that supports an idea similar to a detail in another article on a similar topic.
19	*Reading*	RI.9-10.6	SR	Determine the shared view point of authors in three articles on similar topics.
20	*Reading*	RI.9-10.1	SR	Analyze specific sentences in an article to determine a shift in perspective and select a sentence from another article on a similar topic that supports a similar shift.
21	*Reading*	RI.9-10.3	SR	Compare the use of evidence in three articles on similar topics.

PBT Item No.	Reporting Category	Standard	Item Type*	Item Description
22	*Language, Writing*	L.9-10.1, L.9-10.2, L.9-10.3, W.9-10.2, W.9-10.4	ES	Write an essay explaining an aspect of a topic addressed in three articles; use evidence from all three articles for support.
23	*Reading*	RL.9-10.3	SR	Analyze what specific paragraphs in an excerpt demonstrate about a character.
24	*Language*	L.9-10.4	SR	Determine the meaning of an unknown word based on context.
25	*Reading*	RL.9-10.4	SR	Determine how specific words contribute to meaning and characterization in an excerpt.
26	*Reading*	RL.9-10.4	SR	Identify the mood created by details in a specific sentence of an excerpt.
27	*Reading*	RL.9-10.4	SR	Determine how a specific phrase contributes to meaning and characterization in an excerpt.
28	*Language*	L.9-10.4	SR	Determine the meaning of an unknown word based on context.
29	*Reading*	RL.9-10.3	SR	Identify characterization in an excerpt and select details that support that characterization.
30	*Reading*	RL.9-10.3	SR	Select details from a section of an excerpt that indicate a particular effect on a character.

* ELA item types are selected-response (SR) and essay (ES).

III. Mathematics Retest

Mathematics Retest

The March 2023 next-generation Mathematics retest was administered in two primary 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 tables at the end of this chapter provide information about each item from both the computer-based and paper-based tests, including reporting category, standard covered, item type, and item description.

A Note about Testing Mode

Most of the operational items on the computer-based and paper-based versions of the next-generation Mathematics retest were the same. 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.

Test Sessions and Content Overview

The Mathematics retest 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 Mathematics retest was based on high school standards in the *Massachusetts Curriculum Framework for Mathematics* (2017). The standards in the 2017 framework are organized under the five major conceptual categories listed below.

- Number and Quantity
- Algebra
- Functions
- Geometry
- Statistics and Probability

The Mathematics retest assessed standards that overlap between the Model Algebra I/Model Geometry and Model Mathematics I/Model Mathematics II courses. The *Massachusetts Curriculum Framework for Mathematics* is available on the Department website at www.doe.mass.edu/frameworks/current.html.

Mathematics test results for grade 10 are reported under four MCAS reporting categories, which are based on the five framework conceptual categories listed above.

Spanish-Language Edition

Since approximately 55% of English learner students in Massachusetts public schools are native Spanish speakers, a Spanish-language edition of the Mathematics retest was made available to eligible Spanish-speaking students. The computer-based version of the Spanish-language edition presented the Spanish translation above the English text for each item. The booklets for the paper-based version of the Spanish-language edition were issued in side-by-side English/Spanish format: pages on the left side of each booklet presented items in Spanish; pages on the right side presented the same items in English.

Reference Materials and Tools

Each student taking the Mathematics retest was provided with a grade 10 Mathematics Reference Sheet. A copy of the reference sheet can be found on the next page of this document.

During Session 2, each student had sole access to a calculator. Calculator use was not allowed during Session 1.

During both Mathematics test sessions, the use of bilingual word-to-word dictionaries was allowed for current and former English learner students only. No other reference tools or materials were allowed.

MASSACHUSETTS DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION

Massachusetts Comprehensive Assessment System
Grade 10 Mathematics Reference Sheet

CONVERSIONS

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon ≈ 3.785 liters
1 liter ≈ 0.264 gallon
1 liter = 1000 cubic centimeters

1 inch = 2.54 centimeters
1 meter ≈ 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile ≈ 1.609 kilometers
1 kilometer ≈ 0.62 mile

1 pound = 16 ounces
1 pound ≈ 0.454 kilogram
1 kilogram ≈ 2.2 pounds
1 ton = 2000 pounds

AREA (A) FORMULAS

square . . . . . $A = s^2$
rectangle . . . . . $A = lw$
parallelogram . . . . . $A = bh$
triangle . . . . . $A = \frac{1}{2}bh$
trapezoid . . . . . $A = \frac{1}{2}h(b_1 + b_2)$
circle . . . . . $A = \pi r^2$

TOTAL SURFACE AREA (SA) FORMULAS

cube . . . . . $SA = 6s^2$
right square pyramid . . . . $SA = s^2 + 2s\ell$
(ℓ = slant height)
right rectangular prism . . $SA = 2(lw) + 2(hw) + 2(lh)$

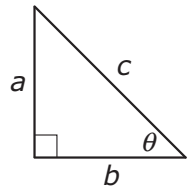
VOLUME (V) FORMULAS

cube . . . . . $V = s^3$
(s = length of an edge)
prism . . . . . $V = Bh$
cylinder . . . . . $V = \pi r^2 h$
cone . . . . . $V = \frac{1}{3}\pi r^2 h$
pyramid . . . . . $V = \frac{1}{3}Bh$
sphere . . . . . $V = \frac{4}{3}\pi r^3$

CIRCLE FORMULAS

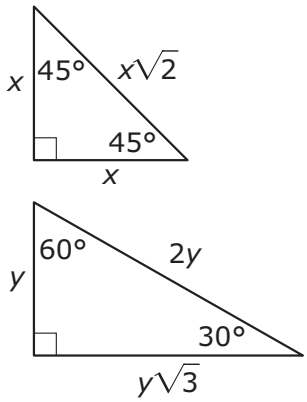
pi . . . . . $\pi \approx 3.14$
circumference . . . . $C = 2\pi r$ OR $C = \pi d$
area . . . . . $A = \pi r^2$

RIGHT TRIANGLES



Pythagorean Theorem
$a^2 + b^2 = c^2$
Trigonometric Ratios
$\sin\theta = \frac{a}{c}$
$\cos\theta = \frac{b}{c}$
$\tan\theta = \frac{a}{b}$

SPECIAL RIGHT TRIANGLES



March 2023 Mathematics Retest
Computer-Based Operational Items

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
1	*Algebra and Functions*	A-REI.C.5	SR	Identify a system of linear equations that has the same solution as a given system of linear equations.
2	*Geometry*	G-C.A.1	SR	Identify a transformation that demonstrates the similarity of two circles.
3	*Algebra and Functions*	A-CED.A.4	SA	Rearrange a given formula to solve for a variable of interest.
4	*Geometry*	G-CO.A.4	SR	Analyze the relationships of the sides of a triangle and those of its image after a translation.
5	*Algebra and Functions*	A-SSE.A.2	SR	Identify a factor of a quadratic expression that represents the difference of two squares.
6	*Number and Quantity*	N-Q.A.2	CR	Use estimation to solve real-world problems involving units and assess the reasonableness of a given estimate.
7	*Geometry*	G-CO.C.10	SR	Use theorems about triangles to find a missing angle measure in a triangle diagram.
8	*Algebra and Functions*	A-REI.B.4	SR	Identify the solutions of a quadratic equation in factored form.
9	*Geometry*	G-CO.B.6	SR	Analyze the relationship of the sides and angles of a triangle and those of its image after a rotation.
10	*Algebra and Functions*	A-REI.D.11	SR	Determine the locations on a coordinate plane where the graphs of two equations intersect.
11	*Number and Quantity*	N-RN.A.1	SA	Evaluate an exponential expression and rewrite a radical expression using laws of exponents.
12	*Algebra and Functions*	A-REI.B.3	SR	Given an absolute value equation and one of its solutions, identify the other solution.
13	*Statistics and Probability*	S-ID.A.3	CR	Calculate and compare measures of center for two data sets, assess a claim about their comparison, and identify the measures of center best suited to describe the sets.
14	*Geometry*	G-CO.A.3	SR	Identify a single transformation and then a sequence of rotations that carries a rectangle onto itself.
15	*Algebra and Functions*	A-APR.A.1	SR	Given a polynomial expression, identify an equivalent expression.
16	*Geometry*	G-C.A.2	SR	Determine a central angle measure in a circle based on a given arc measure.
17	*Algebra and Functions*	A-REI.C.6	SR	Identify the x-value of the solution of a system of linear equations in two variables.
18	*Algebra and Functions*	F-LE.A.3	SR	Determine when the values of a linear function and an exponential function are equal and at what point the value of the exponential function exceeds that of the linear function, based on a graph.
19	*Algebra and Functions*	A-REI.A.1	SR	Determine which step in the solution of a linear equation contains an error.
20	*Statistics and Probability*	S-ID.A.1	SA	Create a histogram to represent a given set of data.
21	*Geometry*	G-GMD.A.3	SR	Calculate the volume of a sphere in terms of pi, given the measure of its radius.
22	*Statistics and Probability*	S-ID.B.5	SR	Compute a marginal relative frequency from real-world data displayed in a two-way table.
23	*Algebra and Functions*	F-IF.B.4	SR	Interpret the meaning of the x-intercept of a linear function within a context.

CBT Item No.	Reporting Category	Standard	Item Type*	Item Description
24	*Geometry*	G-CO.C.9	SR	Analyze the relationship of two lines crossed by a transversal based on a description.
25	*Number and Quantity*	N-RN.B.3	SR	Determine whether operations with rational and irrational numbers represented by variables produce expressions that are rational.
26	*Geometry*	G-C.B.5	SR	Calculate the area of a sector of a circle based on the measure of a central angle.
27	*Algebra and Functions*	F-IF.A.3	CR	Create an expression that represents an arithmetic pattern, presented visually, and extend the pattern to meet various given requirements.
28	*Statistics and Probability*	S-ID.C.7	SR	Interpret the slope of a linear model that represents a real-world situation.
29	*Geometry*	G-SRT.B.4	SR	Use a theorem about triangles to determine unknown side lengths in similar triangles.
30	*Algebra and Functions*	A-SSE.B.3	SR	Determine the values of the variable that make a quadratic expression equal to zero.
31	*Geometry*	G-CO.B.8	SR	Identify a pair of congruent triangles based on given side and angle markings.
32	*Algebra and Functions*	A-CED.A.1	SA	Create and solve a one-variable equation and a one-variable inequality based on a context.
33	*Geometry*	G-GMD.A.1	SR	Given the diameter of a circle, calculate the area of another circle given the ratio of their circumferences.
34	*Geometry*	G-CO.B.6	CR	Determine the coordinates of vertices of a triangle after a translation, calculate the length of a side of the image of the triangle, and explain whether the triangle and its image are congruent.
35	*Number and Quantity*	N-Q.A.1	SA	Analyze a real-world situation and use units and dimensional analysis to solve a related problem.
36	*Geometry*	G-CO.A.1	SR	Choose the correct terms to complete the definition of a circle.
37	*Geometry*	G-CO.D.12	SR	Analyze the steps of a construction to determine its purpose.
38	*Algebra and Functions*	F-LE.B.5	SR	Interpret the rate of change of a linear model that represents a real-world situation.
39	*Statistics and Probability*	S-CP.A.4	SA	Determine two different conditional probabilities from a two-way frequency table of real-world data.
40	*Algebra and Functions*	F-BF.A.1	SR	Create a linear function based on a real-world situation.
41	*Geometry*	G-SRT.C.7	SR	Analyze the relationship between sine and cosine of complementary angles in a right triangle.
42	*Geometry*	G-GPE.B.4	SR	Use coordinates to classify a triangle by its sides.

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

March 2023 Mathematics Retest
Paper-Based Operational Items

PBT Item No.	Reporting Category	Standard	Item Type*	Item Description
1	*Algebra and Functions*	A-REI.C.5	SR	Identify a system of linear equations that has the same solution as a given system of linear equations.
2	*Geometry*	G-C.A.1	SR	Identify a transformation that demonstrates the similarity of two circles.
3	*Algebra and Functions*	A-CED.A.4	SR	Rearrange a given formula to solve for a variable of interest.
4	*Geometry*	G-CO.A.4	SR	Identify a true statement about the relationship of the sides of a triangle and those of its image after a translation.
5	*Algebra and Functions*	A-SSE.A.2	SR	Identify a factor of a quadratic expression that represents the difference of two squares.
6	*Number and Quantity*	N-Q.A.2	CR	Use estimation to solve real-world problems involving units and assess the reasonableness of a given estimate.
7	*Geometry*	G-CO.C.10	SR	Use theorems about triangles to find a missing angle measure in a triangle diagram.
8	*Algebra and Functions*	A-REI.B.4	SR	Identify the solutions of a quadratic equation in factored form.
9	*Geometry*	G-CO.B.6	SR	Analyze the relationship of the sides and angles of a triangle and those of its image after a rotation.
10	*Algebra and Functions*	A-REI.D.11	SR	Determine the locations on a coordinate plane where the graphs of two equations intersect.
11	*Number and Quantity*	N-RN.A.1	SA	Evaluate an exponential expression and rewrite a radical expression using laws of exponents.
12	*Algebra and Functions*	A-REI.B.3	SR	Given an absolute value equation and one of its solutions, identify the other solution.
13	*Statistics and Probability*	S-ID.A.3	CR	Calculate and compare measures of center for two data sets, assess a claim about their comparison, and identify the measures of center best suited to describe the sets.
14	*Geometry*	G-CO.A.3	SR	Identify a single transformation and then a sequence of rotations that carries a rectangle onto itself.
15	*Algebra and Functions*	A-APR.A.1	SR	Given a polynomial expression, identify an equivalent expression.
16	*Geometry*	G-C.A.2	SR	Determine a central angle measure in a circle based on a given arc measure.
17	*Algebra and Functions*	A-REI.C.6	SR	Identify the x-value of the solution of a system of linear equations in two variables.
18	*Algebra and Functions*	F-LE.A.3	SR	Determine when the values of a linear function and an exponential function are equal and at what point the value of the exponential function exceeds that of the linear function, based on a graph.
19	*Algebra and Functions*	A-REI.A.1	SR	Determine which step in the solution of a linear equation contains an error.
20	*Statistics and Probability*	S-ID.A.1	SR	Identify a histogram that represents a given set of data.
21	*Geometry*	G-GMD.A.3	SR	Calculate the volume of a sphere in terms of pi, given the measure of its radius.
22	*Statistics and Probability*	S-ID.B.5	SR	Compute a marginal relative frequency from real-world data displayed in a two-way table.
23	*Algebra and Functions*	F-IF.B.4	SR	Interpret the meaning of the x-intercept of a linear function within a context.

PBT Item No.	Reporting Category	Standard	Item Type*	Item Description
24	*Geometry*	G-CO.C.9	SR	Analyze the relationship of two lines crossed by a transversal based on a description.
25	*Number and Quantity*	N-RN.B.3	SR	Identify a rational variable expression given a description of the nature of the variables.
26	*Geometry*	G-C.B.5	SR	Calculate the area of a sector of a circle based on the measure of a central angle.
27	*Algebra and Functions*	F-IF.A.3	CR	Create an expression that represents an arithmetic pattern, presented visually, and extend the pattern to meet various given requirements.
28	*Statistics and Probability*	S-ID.C.7	SR	Interpret the slope of a linear model that represents a real-world situation.
29	*Geometry*	G-SRT.B.4	SR	Use a theorem about triangles to determine unknown side lengths in similar triangles.
30	*Algebra and Functions*	A-SSE.B.3	SR	Determine the values of the variable that make a quadratic expression equal to zero.
31	*Geometry*	G-CO.B.8	SR	Identify a pair of congruent triangles based on given side and angle markings.
32	*Algebra and Functions*	A-CED.A.1	SA	Create and solve a one-variable equation and a one-variable inequality based on a context.
33	*Geometry*	G-GMD.A.1	SR	Given the diameter of a circle, calculate the area of another circle given the ratio of their circumferences.
34	*Geometry*	G-CO.B.6	CR	Determine the coordinates of vertices of a triangle after a translation, calculate the length of a side of the image of the triangle, and explain whether the triangle and its image are congruent.
35	*Number and Quantity*	N-Q.A.1	SA	Analyze a real-world situation and use units and dimensional analysis to solve a related problem.
36	*Geometry*	G-CO.A.1	SR	Identify a description that best defines a circle.
37	*Geometry*	G-CO.D.12	SR	Analyze the steps of a construction to determine its purpose.
38	*Algebra and Functions*	F-LE.B.5	SR	Interpret the rate of change of a linear model that represents a real-world situation.
39	*Statistics and Probability*	S-CP.A.4	SR	Determine two different conditional probabilities from a two-way frequency table of real-world data.
40	*Algebra and Functions*	F-BF.A.1	SR	Create a linear function based on a real-world situation.
41	*Geometry*	G-SRT.C.7	SR	Analyze the relationship between sine and cosine of complementary angles in a right triangle.
42	*Geometry*	G-GPE.B.4	SR	Use coordinates to classify a triangle by its sides.

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