Alabama Comprehensive Assessment Program (ACAP)

Summative

Item Specifications

Mathematics

Grade 6

Alabama Item Specifications
Grade 6 Mathematics
Alabama Comprehensive Assessment Program (ACAP)
Summative

The *Alabama Comprehensive Assessment Program* (ACAP) *Summative* item specifications are based on the development of summative assessments that measure the Alabama Course of Study Standards. The item specifications define the purpose of the *ACAP Summative* and provide important information regarding the content to be measured. The item specifications also serve as a road map to guide Alabama educators in the development and subsequent review of items that best measure the Course of Study Standards for a given grade and subject area. Each item specification is aligned to the given Alabama content area, cluster, and standard and includes the following key information:

- Evidence statements
- Content limits/constraints
- Recommended Webb's Depth of Knowledge (DOK) or cognitive levels
- Calculator usage
- Item types for measuring a given standard
- Information regarding whether or not context is allowable
- Sample item stem information

The appendix to this document includes sample test items, along with information about the item, including item type, page reference, alignment, depth of knowledge, and answer key. These sample items are provided to be an additional resource for educators to help guide instruction and assessment-building in the classroom. Teachers can use the sample items as models when leading classroom discussion as well as

creating items for classroom tests or quizzes. In each sample item, the level of rigor needed in the item in order to align with the content standard is evident.

Definitions

Course of Study Standards: The Course of Study Standards are a set of content curriculum statements that define what students should know and be able to do at a given grade level. The goal is to prepare students for future opportunities and options in the workplace and for everyday life. Through the implementation of the Alabama Course of Study for Mathematics, students will be well equipped for the workforce upon graduation or ready to pursue higher levels of education in Alabama's colleges and universities.

Alabama Content Areas: Alabama content areas are large groups of related clusters and content standards. Because mathematics is a connected subject, standards from different Alabama content areas may sometimes be closely related.

Clusters: Clusters are groups of related content standards. Because mathematics is a connected subject, standards from different clusters may sometimes be closely related.

Standards: Standards define what students should understand (know) and be able to do at the conclusion of a course or grade. The standard text in the item specification is preceded by a standard identifier (e.g., 4.OA.1) to indicate the student grade level as fourth (4), the Alabama content area as Operations and Algebraic Thinking (OA), and the standard number as one (1).

Evidence Statements: Evidence statements are closely aligned to the standard and do not deviate from the requirements of the standard. Standards that are substantial in content do provide for a better opportunity to "unpack the standard," which is the case for many of the Alabama Course of Study Standards. The evidence statements serve that purpose.

Assessment Limits/Content Constraints: Assessment limits and/or content constraints define the range of content knowledge and the degree of difficulty allowable when items are written to measure a given standard.

Depth of Knowledge (DOK): Depth of knowledge involves the cognitive complexity or the nature of thinking required for a given item. Most recently, Webb's Depth of Knowledge levels are used in the development of items for cognitive demand. Therefore, when developing items for depth of knowledge, the item should be as demanding cognitively as what the actual standard expects. Webb's Depth of Knowledge includes four levels, from the lowest (basic recall) to the highest (extended thinking). The mathematics *ACAP Summative* assessment items are written to one of three cognitive levels of complexity:

- Level 1: Recall
- Level 2: Application of a Skill/Concept
- Level 3: Strategic Thinking

Item Types: The *ACAP Summative* assessments are composed of various item types. These item types are described in the following section.

Context: Context provides information regarding the types of stimulus materials that can be used in the items. If a context is allowable, it means that the item may have context. If context is required, then the item measuring the given standard must have context. If no context is noted, then the items measuring the given standard should not have context.

Sample Stem Information: This statement explains what students are expected to do when they respond to a given item.

Item Types

The *Alabama Comprehensive Assessment Program* (ACAP) *Summative* assessments are composed of various item types. These item types are described below.

Multiple-Choice (MC) Items: MC items have four answer choices, including three distractors and one correct answer. Distractors for mathematics represent common misconceptions, incorrect logic, incorrect application of an algorithm, computational errors, etc. A correct response to an MC item is worth one score point in the mathematics *ACAP Summative*.

Multiple-Select (MS) Items: MS items are similar in structure to MC items. However, unlike an MC item, an MS item has more than four options and more than one correct answer. In other words, multiple responses are required for a given item. For mathematics, there are two types of MS configurations. One has five answer options, two of which are correct, and the other has six answer options, two or three of which are correct. Directions for the number of options to select are provided with each item. A correct response to an MS item is worth one score point in the mathematics *ACAP Summative*.

Short-Answer (SA) Items: SA items are constructed-response items that require a keyed response from the student. The number of characters is limited to a relatively small number in order to facilitate autoscoring. The types of characters allowed can also be limited to text only, numbers only, or a mix. In the mathematics *ACAP Summative*, this item type is autoscored using scoring guidelines for the correct answer. A correct response to an SA item is worth one score point in the mathematics *ACAP Summative*.

Technology-Enhanced (TE) Items: TE items share the same functional structure as traditional paper-and-pencil test items; however, the expansive features and functions of a computer-based medium allow for the incorporation of technical enhancements into traditional elements of a test item, such as the stem, the stimulus (if any), the response area, or a combination of all three. These items require the use of one or more tools. A correct response to a TE item is worth one score point in the mathematics *ACAP Summative*. Mathematics TE items include, but are not limited to, the following:

- **Angle Draw Input:** These TE items provide a student with a given ray, and then the student completes the angle by drawing a second ray.
- **Drag-and-Drop Input**: These TE items provide a student with draggable entities that can be configured to be used once or multiple times.
- **Drop-Down List Input:** These TE items allow a student to select elements in drop-down lists that can be embedded within text or tables.
- **Hot Spot:** These TE items allow for an image to be highlighted or replaced with another image when selected by the student.
- **Line Plot Input:** These TE items provide another way for a student to graphically represent data when the structure is provided. Certain labeling on the line plot can be done by the student.
- **Matching:** These TE items allow for the use of text or graphics as the matching objects. The student selects one object and then selects a second object to connect them.
- **Matching Table:** These TE items include a table with multiple rows and columns, and the student makes matches between the given elements in the rows and columns. The table can be customized to allow for only a single selection in a row or column or for multiple selections within each.
- **Number Line Input:** These TE items allow a student to create a number line graph that might involve plotting points only or points and lines. Both closed and open points are available, as well as line segments and rays.

Standards for Mathematical Practice

The Standards for Mathematical Practice are based on important "processes and proficiencies" that have longstanding importance in mathematics education. The first of these are the National Council of Teachers of Mathematics (NCTM) process standards of problem-solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up: Helping Children Learn Mathematics*. These proficiencies include adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations, and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently, and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy). Because these practices are an important part of the curriculum, they will be assessed throughout the mathematics *ACAP Summative*. The eight Standards for Mathematical Practice are listed below, but more detail is provided in the Alabama Course of Study for Mathematics.

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

Mathematics Reference Sheets

An online reference sheet is available as a pop-up window in certain grades.

Grade	Conversions	Formulas
2	No	No
3	No	No
4	Yes	Yes
5	Yes	Yes
6	Yes	Yes
7	Yes	Yes
8	Yes	Yes

Item Specifications for Mathematics

Item specifications are one of the key requirements for a high-quality, legally defensible, standards-based assessment. Item specifications help define important characteristics of the items (i.e., test questions) developed for each standard. These item specifications provide guidelines to help clarify the focus of what is to be assessed, what items may include, and what items may not include (i.e., assessment limits). Item specifications are used by item writers, item editors, and item reviewers as a common reference throughout the item-development process, from initial writing to final approval. These item specifications are based on the 2019 Alabama Course of Study Standards for Mathematics.

Content Area	PR: Proportional Reasoning
Cluster	Develop an understanding of ratio concepts and use reasoning about ratios to solve problems.
Standard (2019 AL COS)	6.PR.1: Use appropriate notations [*a/b*, *a to b*, *a:b*] to represent a proportional relationship between quantities and use ratio language to describe the relationship between quantities.
Evidence Statements	The student will use appropriate notations [*a/b*, *a to b*, *a:b*] to represent a proportional relationship between quantities and use ratio language to describe the relationship between quantities.
Assessment Limits / Content Constraints	Expectations for ratios in this grade are limited to ratios of noncomplex fractions. The initial numerator and denominator should be whole numbers.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a ratio, identify a context that fits the ratio. Given a context and ratio, identify what the ratio means in the context.

Content Area	PR: Proportional Reasoning
Cluster	Develop an understanding of ratio concepts and use reasoning about ratios to solve problems.
Standard (2019 AL COS)	6.PR.2: Use unit rates to represent and describe ratio relationships.
Evidence Statements	The student will use unit rates to represent and describe ratio relationships.
Assessment Limits / Content Constraints	Expectations for unit rates in this grade are limited to noncomplex fractions. The initial numerator and denominator should be whole numbers.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a ratio in context, find the unit rate.

Content Area	PR: Proportional Reasoning
Cluster	Develop an understanding of ratio concepts and use reasoning about ratios to solve problems.
Standard (2019 AL COS)	6.PR.3: Use ratio and rate reasoning to solve mathematical and real-world problems (including but not limited to percent, measurement conversion, and equivalent ratios) using a variety of models, including tables of equivalent ratios, tape diagrams, double number lines, and equations.
Evidence Statements	The student will use ratio and rate reasoning to solve mathematical and real-world problems (including but not limited to percent, measurement conversion, and equivalent ratios) using a variety of models, including tables of equivalent ratios, tape diagrams, double number lines, and equations.
Assessment Limits / Content Constraints	Expectations for ratios in this grade are limited to ratios of noncomplex fractions. The initial numerator and denominator should be whole numbers.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given two tables of values of different ratios, make a comparison between the ratios. Given a ratio, identify a table of values for the ratio. Given a context that describes a ratio (a:b), find x or y in an equivalent ratio of x:y. Given two rates (e.g., $/lb.), determine which situation optimizes the unit rate. Given that a known number is a certain percentage of an unknown whole, identify the whole. Given that an unknown number is a certain percentage of a known whole, identify the number. Given a known number and a known whole, identify the percentage. Given a measurement in one unit, convert the measurement to a different unit using ratio reasoning. Given a conversion factor, use ratios to compare sizes of figures.

Content Area	NSO: Number Systems and Operations
Cluster	Use prior knowledge of multiplication and division to divide fractions.
Standard (2019 AL COS)	6.NSO.4a: Interpret and compute quotients of fractions using visual models and equations to represent problems. a. Use quotients of fractions to analyze and solve problems.
Evidence Statements	The student will interpret and compute quotients of fractions using visual models and equations to represent problems. The student will use quotients of fractions to analyze and solve problems.
Assessment Limits / Content Constraints	Only the answer is required. Note that the examples correspond to three meanings/uses of division: (1) equal sharing, (2) measurement, and (3) unknown factor. Tasks may involve fractions and mixed numbers but not decimals.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a context involving two fractions, identify the quotient when one fraction is divided by the other.

Content Area	NSO: Number Systems and Operations
Cluster	Compute multi-digit numbers fluently and determine common factors and multiples.
Standard (2019 AL COS)	6.NSO.5: Fluently divide multi-digit whole numbers using a standard algorithm to solve real-world and mathematical problems.
Evidence Statements	The student will fluently divide multi-digit whole numbers using a standard algorithm to solve real-world and mathematical problems.
Assessment Limits / Content Constraints	The given dividend and divisor require an efficient/standard algorithm (e.g., 40,584 ÷ 76). Tasks have a maximum of five-digit dividends and a maximum of two-digit divisors. Tasks may or may not have a remainder. Students understand that remainders can be written as fractions or decimals.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given two multi-digit numbers, find the quotient.

Content Area	NSO: Number Systems and Operations
Cluster	Compute multi-digit numbers fluently and determine common factors and multiples.
Standard (2019 AL COS)	6.NSO.6: Add, subtract, multiply, and divide decimals using a standard algorithm.
Evidence Statements	The student will add, subtract, multiply, and divide decimals using a standard algorithm.
Assessment Limits / Content Constraints	Tasks do not have a context. Only the sum is required. The given addends require an efficient/standard algorithm (e.g., 72.63 + 4.875). Each addend is greater than or equal to 0.001 and less than or equal to 99.999. Only the difference is required. The given subtrahend and minuend require an efficient/standard algorithm (e.g., 177.3 – 72.635). The subtrahend and minuend are each greater than or equal to 0.001 and less than or equal to 99.999. All differences are positive. Only the product is required. The given factors require an efficient/standard algorithm (e.g., 72.3 × 4.8). For purposes of assessment, the possibilities are 1-digit × 2-digit, 1-digit × 3-digit, 2-digit × 3-digit, 2-digit × 4-digit, or 2-digit × 5-digit. Only the quotient is required. The given dividend and divisor require an efficient/standard algorithm (e.g., 177.3 ÷ 0.36). Tasks are either 4-digit ÷ 2-digit or 3-digit ÷ 3-digit (e.g., 14.28 ÷ 0.68 or 2.39 ÷ 0.684). Every quotient is a whole number or a decimal terminating at the tenths, hundredths, or thousandths place.
DOK(s)	1
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Not Allowable
Sample Stem Information (as applicable)	Given two decimal numbers, identify the sum, difference, product, or quotient.

Content Area	NSO: Number Systems and Operations
Cluster	Compute multi-digit numbers fluently and determine common factors and multiples.
Standard (2019 AL COS)	6.NSO.7: Use the distributive property to express the sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor.
Evidence Statements	The student will use the distributive property to express the sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor.
Assessment Limits / Content Constraints	Tasks do not have a context.
DOK(s)	1
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Not Allowable
Sample Stem Information (as applicable)	Given an expression adding two whole numbers, identify an equivalent expression that factors out the greatest common factor of the numbers.

Content Area	NSO: Number Systems and Operations
Cluster	Compute multi-digit numbers fluently and determine common factors and multiples.
Standard (2019 AL COS)	6.NSO.8a: Find the greatest common factor (GCF) and least common multiple (LCM) of two or more whole numbers. a. Use factors and multiples to determine prime factorization.
Evidence Statements	The student will find the greatest common factor (GCF) and least common multiple (LCM) of two or more whole numbers. The student will use factors and multiples to determine prime factorization.
Assessment Limits / Content Constraints	Tasks do not have a context.
DOK(s)	1
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Not Allowable
Sample Stem Information (as applicable)	Given two or more whole numbers, identify their greatest common factor. Given two or more whole numbers, identify their least common multiple. Given an expression adding two or more whole numbers, identify an equivalent expression that factors out the greatest common factor of the numbers.

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.9: Use signed numbers to describe quantities that have opposite directions or values and to represent quantities in real-world contexts.
Evidence Statements	The student will use signed numbers to describe quantities that have opposite directions or values and to represent quantities in real-world contexts.
Assessment Limits / Content Constraints	Tasks do not require students to perform any computations.
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a context that would be represented by a negative number, identify the number. Given a negative number, identify a context that could be represented by the number.

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.10a: Locate integers and other rational numbers on a horizontal or vertical line diagram. a. Define *opposites* as numbers located on opposite sides of 0 and the same distance from 0 on a number line.
Evidence Statements	The student will define *opposites* as numbers located on opposite sides of 0 and the same distance from 0 on a number line.
Assessment Limits / Content Constraints	Tasks have “thin context” or no context.
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a number, locate its opposite on a number line. Given a number, identify its opposite.

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.10b: Locate integers and other rational numbers on a horizontal or vertical line diagram. b. Use rational numbers in real-world and mathematical situations, explaining the meaning of 0 in each situation.
Evidence Statements	The student will use rational numbers in real-world and mathematical situations, explaining the meaning of 0 in each situation.
Assessment Limits / Content Constraints	Tasks do not require students to perform any computations.
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.11a: Find the position of pairs of integers and other rational numbers on the coordinate plane. a. Identify quadrant locations of ordered pairs on the coordinate plane based on the signs of the *x* and *y* coordinates.
Evidence Statements	The student will identify quadrant locations of ordered pairs on the coordinate plane based on the signs of the *x* and *y* coordinates.
Assessment Limits / Content Constraints	Tasks have “thin context” or no context. Students need not recognize or use traditional notation for quadrants (such as I, II, III, and IV).
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a point plotted on a number line or coordinate plane, identify the point. Given a negative number or coordinate pair, identify the point on a number line or coordinate plane.

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.11b: Find the position of pairs of integers and other rational numbers on the coordinate plane. b. Identify (*a*,*b*) and (*a*,-*b*) as reflections across the *x*-axis.
Evidence Statements	The student will identify (*a*,*b*) and (*a*,-*b*) as reflections across the *x*-axis.
Assessment Limits / Content Constraints	Tasks have “thin context” or no context. Students need not recognize or use traditional notation for quadrants (such as I, II, III, and IV).
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a point, identify the location of the point after it is reflected across the *x*-axis.

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.11c: Find the position of pairs of integers and other rational numbers on the coordinate plane. c. Identify (*a*,*b*) and (-*a*,*b*) as reflections across the *y*-axis.
Evidence Statements	The student will identify (*a*,*b*) and (-*a*,*b*) as reflections across the *y*-axis.
Assessment Limits / Content Constraints	Tasks have "thin context" or no context. Students need not recognize or use traditional notation for quadrants (such as I, II, III, and IV).
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a point, identify the location of the point after it is reflected across the *y*-axis.

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.11d: Find the position of pairs of integers and other rational numbers on the coordinate plane. d. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane, including finding distances between points with the same first or second coordinate.
Evidence Statements	The student will solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane, including finding distances between points with the same first or second coordinate.
Assessment Limits / Content Constraints	Tasks may or may not contain context. Finding distances is limited to points with integer coordinates. Students need not recognize or use traditional notation for quadrants (such as I, II, III, and IV).
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given two points with the same *x*-coordinate or the same *y*-coordinate, find the distance between the points.

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.12: Explain the meaning of absolute value and determine the absolute value of rational numbers in real-world contexts.
Evidence Statements	The student will explain the meaning of absolute value and determine the absolute value of rational numbers in real-world contexts.
Assessment Limits / Content Constraints	Tasks have a context. Tasks are not limited to integers.
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a list of numbers, order them in terms of their distance from zero.

Content Area	NSO: Number Systems and Operations
Cluster	Apply knowledge of the number system to represent and use rational numbers in a variety of forms.
Standard (2019 AL COS)	6.NSO.13: Compare and order rational numbers and absolute value of rational numbers with and without a number line in order to solve real-world and mathematical problems.
Evidence Statements	The student will compare and order rational numbers and absolute value of rational numbers with and without a number line in order to solve real-world and mathematical problems.
Assessment Limits / Content Constraints	Tasks are not limited to integers.
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an inequality, describe the relative positions of the numbers on a number line. Given numbers in a context, order the numbers from least to greatest. Given a list of numbers, order them in terms of their distance from zero. Given a context, determine whether to use absolute values when comparing numbers.

Content Area	AF: Algebra and Functions
Cluster	Apply knowledge of arithmetic to read, write, and evaluate algebraic expressions.
Standard (2019 AL COS)	6.AF.14: Write, evaluate, and compare expressions involving whole number exponents.
Evidence Statements	The student will write, evaluate, and compare expressions involving whole number exponents.
Assessment Limits / Content Constraints	Tasks involve expressing *b*-fold products $a \cdot a \cdot a \ldots \cdot a$ in the form a^b, where *a* and *b* are nonzero whole numbers. Tasks do not require the use of the laws of exponents.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an expression with a whole-number exponent, evaluate the expression. Given an expression with repeated multiplication, write the expression using an exponent.

Content Area	AF: Algebra and Functions
Cluster	Apply knowledge of arithmetic to read, write, and evaluate algebraic expressions.
Standard (2019 AL COS)	6.AF.15a: Write, read, and evaluate expressions in which letters represent numbers in real-world contexts. a. Interpret a variable as an unknown value for any number in a specified set, depending on the context.
Evidence Statements	The student will interpret a variable as an unknown value for any number in a specified set, depending on the context.
Assessment Limits / Content Constraints	Numerical values in these expressions may include whole numbers, fractions, and decimals. Tasks may require students to write an expression to represent a real-world problem. Tasks do not require students to find a solution. Tasks may require students to interpret a variable as a specific unknown number or as a number that could represent any number in a specified set.
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a context, identify an expression that represents the context.

Content Area	AF: Algebra and Functions
Cluster	Apply knowledge of arithmetic to read, write, and evaluate algebraic expressions.
Standard (2019 AL COS)	6.AF.15b: Write, read, and evaluate expressions in which letters represent numbers in real-world contexts. b. Write expressions to represent verbal statements and real-world scenarios.
Evidence Statements	The student will write expressions to represent verbal statements and real-world scenarios.
Assessment Limits / Content Constraints	Numerical values in these expressions may include whole numbers, fractions, and decimals.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an expression in words, identify the expression written numerically. Given an expression written numerically, identify the expression in words.

Content Area	AF: Algebra and Functions
Cluster	Apply knowledge of arithmetic to read, write, and evaluate algebraic expressions.
Standard (2019 AL COS)	6.AF.15c: Write, read, and evaluate expressions in which letters represent numbers in real-world contexts. c. Identify parts of an expression using mathematical terms such as *sum*, *term*, *product*, *factor*, *quotient*, and *coefficient*.
Evidence Statements	The student will identify parts of an expression using mathematical terms such as *sum*, *term*, *product*, *factor*, *quotient*, and *coefficient*.
Assessment Limits / Content Constraints	Numerical values in these expressions may include whole numbers, fractions, and decimals.
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an expression, identify one piece of the expression with the correct term.

Content Area	AF: Algebra and Functions
Cluster	Apply knowledge of arithmetic to read, write, and evaluate algebraic expressions.
Standard (2019 AL COS)	6.AF.15d: Write, read, and evaluate expressions in which letters represent numbers in real-world contexts. d. Evaluate expressions (which may include absolute value and whole number exponents) with respect to order of operations.
Evidence Statements	The student will evaluate expressions (which may include absolute value and whole number exponents) with respect to order of operations.
Assessment Limits / Content Constraints	Numerical values in these expressions may include whole numbers, fractions, and decimals. Tasks will not require operations on negative numbers. Tasks are simple applications of formulas that are provided in the prompt. Tasks do not require the student to manipulate the formula or isolate variables to solve an equation.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an expression that includes a variable, evaluate the expression for a given value of the variable.

Content Area	AF: Algebra and Functions
Cluster	Apply knowledge of arithmetic to read, write, and evaluate algebraic expressions.
Standard (2019 AL COS)	6.AF.16: Generate equivalent algebraic expressions using the properties of operations, including inverse, identity, commutative, associative, and distributive.
Evidence Statements	The student will generate equivalent algebraic expressions using the properties of operations, including inverse, identity, commutative, associative, and distributive.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an expression, identify an equivalent expression.

Content Area	AF: Algebra and Functions
Cluster	Apply knowledge of arithmetic to read, write, and evaluate algebraic expressions.
Standard (2019 AL COS)	6.AF.17: Determine whether two expressions are equivalent and justify the reasoning.
Evidence Statements	The student will determine whether two expressions are equivalent and justify the reasoning.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an expression, identify an equivalent expression.

Content Area	AF: Algebra and Functions
Cluster	Use equations and inequalities to represent and solve real-world or mathematical problems.
Standard (2019 AL COS)	6.AF.18: Determine whether a value is a solution to an equation or inequality by using substitution to conclude whether a given value makes the equation or inequality true.
Evidence Statements	The student will determine whether a value is a solution to an equation or inequality by using substitution to conclude whether a given value makes the equation or inequality true.
Assessment Limits / Content Constraints	Tasks may involve values from an infinite set of nonnegative numbers (e.g., even numbers, whole numbers, fractions). Tasks may involve values from a finite set of nonnegative numbers (e.g., {2, 5, 7, 9}).
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an equation in one variable, find the solution to the equation. Given an inequality, identify a solution to the inequality.

Content Area	AF: Algebra and Functions
Cluster	Use equations and inequalities to represent and solve real-world or mathematical problems.
Standard (2019 AL COS)	6.AF.19a: Write and solve an equation in the form of $x + p = q$ or $px = q$ for cases in which p, q, and x are all non-negative rational numbers to solve real-world and mathematical problems. a. Interpret the solution of an equation in the context of the problem.
Evidence Statements	The student will write and solve an equation in the form of $x + p = q$ or $px = q$ for cases in which p, q, and x are all non-negative rational numbers to solve real-world and mathematical problems. The student will interpret the solution of an equation in the context of the problem.
Assessment Limits / Content Constraints	Tasks are algebraic, not arithmetic. Fractions and decimals should not appear together in the same problem.
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a context, identify an equation that represents the context. Given a context, identify the solution to an equation that represents the context. Given an equation, identify the solution to the equation.

Content Area	AF: Algebra and Functions
Cluster	Use equations and inequalities to represent and solve real-world or mathematical problems.
Standard (2019 AL COS)	6.AF.20a: Write and solve inequalities in the form of $x > c$, $x < c$, $x \geq c$, or $x \leq c$ to represent a constraint or condition in a real-world or mathematical problem. a. Interpret the solution of an inequality in the context of a problem.
Evidence Statements	The student will interpret the solution of an inequality in the context of a problem.
Assessment Limits / Content Constraints	Values of c are not limited to integers.
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a context, identify an inequality that represents the context.

Content Area	AF: Algebra and Functions
Cluster	Use equations and inequalities to represent and solve real-world or mathematical problems.
Standard (2019 AL COS)	6.AF.20b: Write and solve inequalities in the form of $x > c$, $x < c$, $x \geq c$, or $x \leq c$ to represent a constraint or condition in a real-world or mathematical problem. b. Represent the solutions of inequalities on a number line and explain that the solution set may contain infinitely many solutions.
Evidence Statements	The student will represent the solutions of inequalities on a number line and explain that the solution set may contain infinitely many solutions.
Assessment Limits / Content Constraints	Values of c are not limited to integers.
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an inequality, identify the solution represented on a number line. Given the solution to an inequality on a number line, identify the inequality.

Content Area	AF: Algebra and Functions
Cluster	Identify and analyze relationships between independent and dependent variables.
Standard (2019 AL COS)	6.AF.21a: Identify, represent, and analyze two quantities that change in relationship to one another in real-world or mathematical situations. a. Use tables, graphs, and equations to represent the relationship between independent and dependent variables.
Evidence Statements	The student will identify, represent, and analyze two quantities that change in relationship to one another in real-world or mathematical situations. The student will use tables, graphs, and equations to represent the relationship between independent and dependent variables.
Assessment Limits / Content Constraints	Tasks that involve writing an equation should not go beyond the equation types described in 6.AF.19a ($x + p = q$ and $px = q$, where p, q, and x are all nonnegative rational numbers).
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a context, identify an equation that represents the context. Given an equation, identify a table of values for the equation.

Content Area	DSP: Data Analysis, Statistics, and Probability
Cluster	Use real-world and mathematical problems to analyze data and demonstrate an understanding of statistical variability and measures of center.
Standard (2019 AL COS)	6.DSP.22: Write examples and non-examples of statistical questions, explaining that a statistical question anticipates variability in the data related to the question.
Evidence Statements	The student will write examples and non-examples of statistical questions, explaining that a statistical question anticipates variability in the data related to the question.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Identify a statistical question.

Content Area	DSP: Data Analysis, Statistics, and Probability
Cluster	Use real-world and mathematical problems to analyze data and demonstrate an understanding of statistical variability and measures of center.
Standard (2019 AL COS)	6.DSP.23a: Calculate, interpret, and compare measures of center (mean, median, mode) and variability (range and interquartile range) in real-world data sets. a. Determine which measure of center best represents a real-world data set.
Evidence Statements	The student will determine which measure of center best represents a real-world data set.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a data set, choose an appropriate measure of center based on the context of the data or the shape of the distribution.

Content Area	DSP: Data Analysis, Statistics, and Probability
Cluster	Use real-world and mathematical problems to analyze data and demonstrate an understanding of statistical variability and measures of center.
Standard (2019 AL COS)	6.DSP.23b: Calculate, interpret, and compare measures of center (mean, median, mode) and variability (range and interquartile range) in real-world data sets. b. Interpret the measures of center and variability in the context of a problem.
Evidence Statements	The student will interpret the measures of center and variability in the context of a problem.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a data set, find a statistical measure of the data set. Data can be given as a list or a data display. Given a data set, identify how an additional data point could change a statistical measure.

Content Area	DSP: Data Analysis, Statistics, and Probability
Cluster	Use real-world and mathematical problems to analyze data and demonstrate an understanding of statistical variability and measures of center.
Standard (2019 AL COS)	6.DSP.24a: Represent numerical data graphically, using dot plots, line plots, histograms, stem and leaf plots, and box plots. a. Analyze the graphical representation of data by describing the center, spread, shape (including approximately symmetric or skewed), and unusual features (including gaps, peaks, clusters, and extreme values).
Evidence Statements	The student will analyze the graphical representation of data by describing the center, spread, shape (including approximately symmetric or skewed), and unusual features (including gaps, peaks, clusters, and extreme values).
Assessment Limits / Content Constraints	Tasks might present several distributions graphically and ask which two have nearly the same center, nearly the same spread, or nearly the same overall shape.
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a data set, describe the shape of the data set (skewed left/right, etc.).

Content Area	DSP: Data Analysis, Statistics, and Probability
Cluster	Use real-world and mathematical problems to analyze data and demonstrate an understanding of statistical variability and measures of center.
Standard (2019 AL COS)	6.DSP.24b: Represent numerical data graphically, using dot plots, line plots, histograms, stem and leaf plots, and box plots. b. Use graphical representations of real-world data to describe the context from which they were collected.
Evidence Statements	The student will use graphical representations of real-world data to describe the context from which they were collected.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NEUTRAL – a calculator may or may not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	

Content Area	GM: Geometry and Measurement
Cluster	Graph polygons in the coordinate plane to solve real-world and mathematical problems.
Standard (2019 AL COS)	6.GM.25a: Graph polygons in the coordinate plane given coordinates of the vertices to solve real-world and mathematical problems. a. Determine missing vertices of a rectangle with the same *x*-coordinate or the same *y*-coordinate when graphed in the coordinate plane.
Evidence Statements	The student will determine missing vertices of a rectangle with the same *x*-coordinate or the same *y*-coordinate when graphed in the coordinate plane.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a polygon on a coordinate plane, identify the coordinates of its vertices. Given the coordinates of a polygon, identify the polygon on a coordinate plane.

Content Area	GM: Geometry and Measurement
Cluster	Graph polygons in the coordinate plane to solve real-world and mathematical problems.
Standard (2019 AL COS)	6.GM.25b: Graph polygons in the coordinate plane given coordinates of the vertices to solve real-world and mathematical problems. b. Use coordinates to find the length of a side between points having the same *x*-coordinate or the same *y*-coordinate.
Evidence Statements	The student will use coordinates to find the length of a side between points having the same *x*-coordinate or the same *y*-coordinate.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given points on a coordinate grid with the same *x*- or *y*-coordinate, identify the distance between the points.

Content Area	GM: Geometry and Measurement
Cluster	Graph polygons in the coordinate plane to solve real-world and mathematical problems.
Standard (2019 AL COS)	6.GM.25c: Graph polygons in the coordinate plane given coordinates of the vertices to solve real-world and mathematical problems. c. Calculate perimeter and area of a polygon graphed in the coordinate plane (limiting to polygons in which consecutive vertices have the same *x*-coordinate or the same *y*-coordinate).
Evidence Statements	The student will calculate perimeter and area of a polygon graphed in the coordinate plane (limiting to polygons in which consecutive vertices have the same *x*-coordinate or the same *y*-coordinate).
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	

Content Area	GM: Geometry and Measurement
Cluster	Solve real-world and mathematical problems to determine area, surface area, and volume.
Standard (2019 AL COS)	6.GM.26a: Calculate the area of triangles, special quadrilaterals, and other polygons by composing and decomposing them into known shapes. a. Apply the techniques of composing and decomposing polygons to find area in the context of solving real-world and mathematical problems.
Evidence Statements	The student will calculate the area of triangles, special quadrilaterals, and other polygons by composing and decomposing them into known shapes. The student will apply the techniques of composing and decomposing polygons to find area in the context of solving real-world and mathematical problems.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a shape made up of rectangles and triangles, find the area of the shape.

Content Area	GM: Geometry and Measurement
Cluster	Solve real-world and mathematical problems to determine area, surface area, and volume.
Standard (2019 AL COS)	6.GM.27: Determine the surface area of three-dimensional figures by representing them with nets composed of rectangles and triangles to solve real-world and mathematical problems.
Evidence Statements	The student will determine the surface area of three-dimensional figures by representing them with nets composed of rectangles and triangles to solve real-world and mathematical problems.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a three-dimensional figure, identify a net of the figure. Given a net of a three-dimensional figure, find the surface area of the figure.

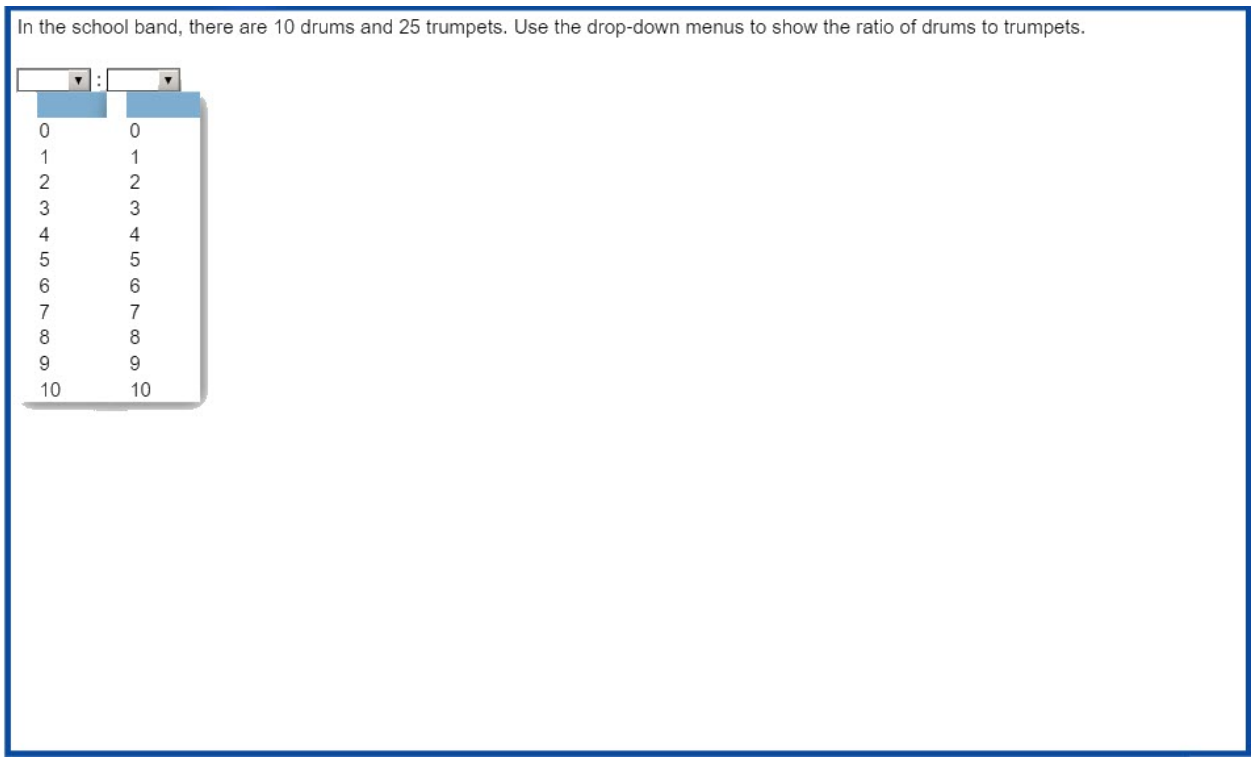
Content Area	GM: Geometry and Measurement
Cluster	Solve real-world and mathematical problems to determine area, surface area, and volume.
Standard (2019 AL COS)	6.GM.28a: Apply previous understanding of volume of right rectangular prisms to those with fractional edge lengths to solve real-world and mathematical problems. a. Use models (cubes or drawings) and the volume formulas (V = *lwh* and V = *Bh*) to find and compare volumes of right rectangular prisms.
Evidence Statements	The student will apply previous understanding of volume of right rectangular prisms to those with fractional edge lengths to solve real-world and mathematical problems. The student will use models (cubes or drawings) and the volume formulas (V = *lwh* and V = *Bh*) to find and compare volumes of right rectangular prisms.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	YES – a calculator will be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given the dimensions of a right rectangular prism with fractional edge lengths, find the volume of the prism.

Appendix A: Sample Items

Sample Items

Appendix A: Sample Items

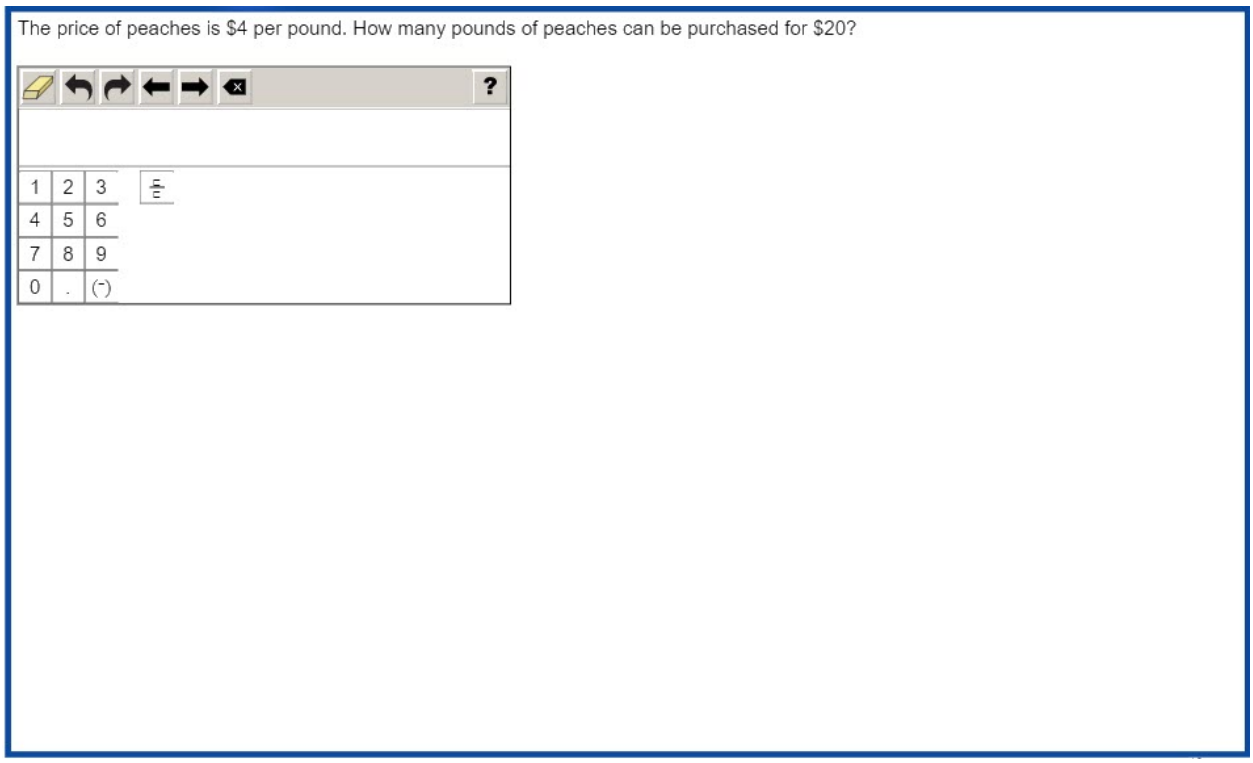
Sample Item 1



Item Information		Answer Key(s) Description
Item Type	Technology Enhanced	2 : 5 OR 4 : 10
Page Reference	9	
Alignment	6.PR.1	
Depth of Knowledge	1	
Answer Key	(see description)	

Appendix A: Sample Items

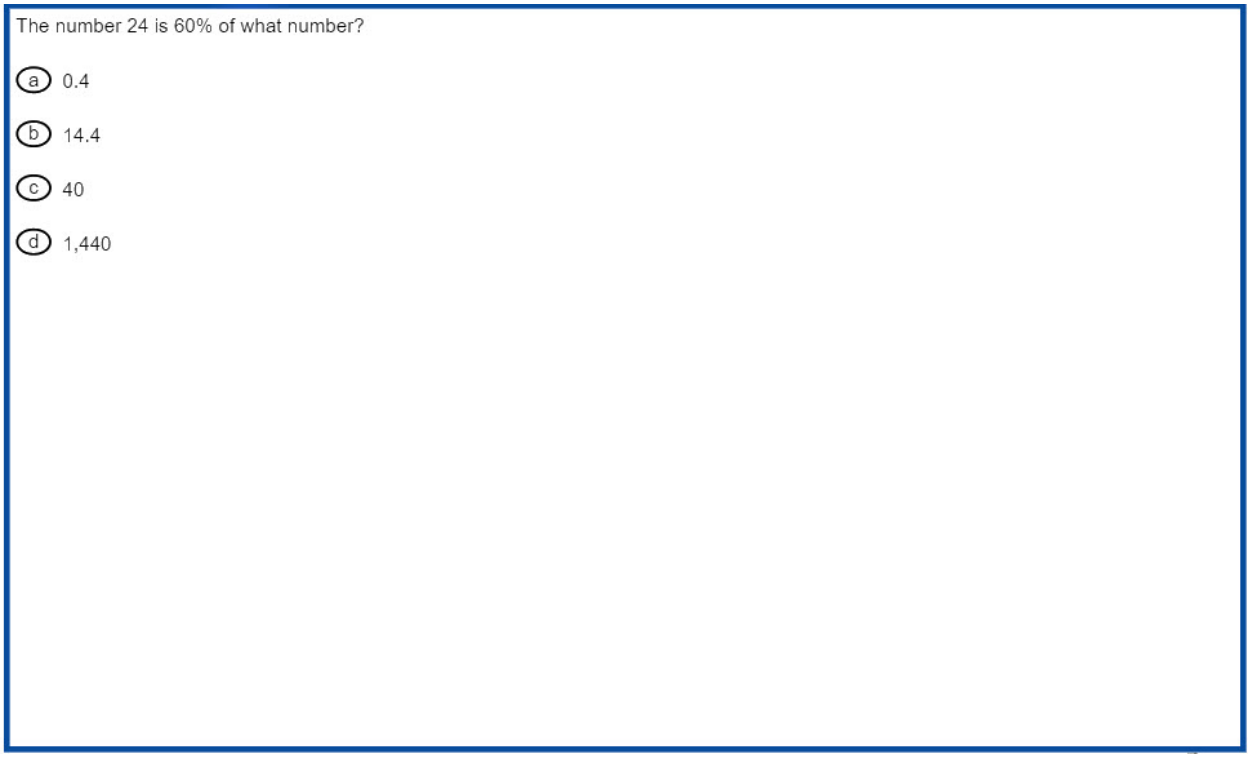
Sample Item 2



Item Information		Answer Key(s) Description
Item Type	Short Answer	5 (or equivalent)
Page Reference	11	
Alignment	6.PR.3	
Depth of Knowledge	2	
Answer Key	(see description)	

Appendix A: Sample Items

Sample Item 3



Item Information		Option Annotations
Item Type	Multiple Choice	A. The student finds the unit rate by dividing 24 by 60. B. The student finds 60% of 24. C. Correct D. The student multiplies 24 and 60.
Page Reference	11	
Alignment	6.PR.3	
Depth of Knowledge	2	
Answer Key	C	

Appendix A: Sample Items

Sample Item 4

A bucket contains $7\frac{1}{2}$ pounds of sand. All of the sand in the bucket will be poured into bags so that each bag holds $1\frac{1}{2}$ pounds of sand. How many bags are needed?

(a) $\frac{1}{5}$

(b) 5

(c) 7

(d) $11\frac{1}{4}$

Item Information		Option Annotations
Item Type	Multiple Choice	A. The student divides 1.5 by 7.5. B. Correct C. The student thinks 7.5 divided by 1.5 is the same as 7 divided by 1. D. The student multiplies 7.5 and 1.5.
Page Reference	12	
Alignment	6.NSO.4a	
Depth of Knowledge	2	
Answer Key	B	

Appendix A: Sample Items

Sample Item 5

Which expression represents the greatest common factor of 24 and 42?

(a) 2^3

(b) $2 + 3$

(c) 2^2

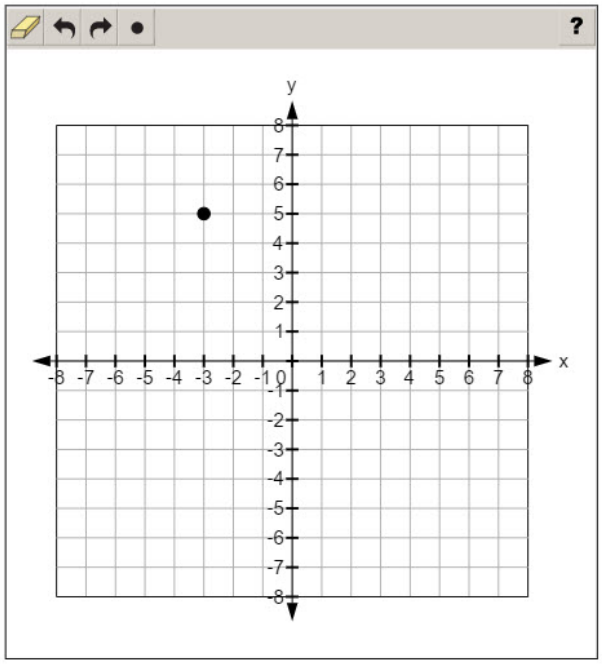
(d) $2 \cdot 3$

Item Information		Option Annotations
Item Type	Multiple Choice	A. The student thinks 2^3 is 6. B. The student adds the factors. C. The student thinks 4 is the GCF. D. Correct
Page Reference	16	
Alignment	6.NSO.8a	
Depth of Knowledge	1	
Answer Key	D	

Appendix A: Sample Items

Sample Item 6

A point is shown on a coordinate plane. Plot a point to represent the reflection of the given point across the *x*-axis.



Item Information		Answer Key(s) Description
Item Type	Technology Enhanced	Point plotted at (−3, −5).
Page Reference	21	
Alignment	6.NSO.11b	
Depth of Knowledge	2	
Answer Key	(see description)	

Appendix A: Sample Items

Sample Item 7

The table shows the temperatures, in degrees Fahrenheit (°F), in Fairbanks, Alaska, for five days.

Day	Temperature (°F)
Monday	−5
Tuesday	2
Wednesday	−11
Thursday	0
Friday	−2

Which list shows the days ordered from the day with the coldest temperature to the day with the warmest temperature?

(a) Wednesday, Monday, Tuesday, Thursday, Friday

(b) Thursday, Friday, Tuesday, Monday, Wednesday

(c) Wednesday, Monday, Friday, Thursday, Tuesday

(d) Thursday, Tuesday, Friday, Monday, Wednesday

Item Information		Option Annotations
Item Type	Multiple Choice	A. The student confuses the temperatures of 2 and −2. B. The student orders the numbers by absolute value without considering positive or negative numbers. C. Correct D. The student orders the numbers by absolute value and lists the positive numbers first.
Page Reference	25	
Alignment	6.NSO.13	
Depth of Knowledge	2	
Answer Key	C	

Appendix A: Sample Items

Sample Item 8

An inequality is shown.

$$n \leq 0.5$$

Select the **two** values that are in the solution set of the inequality.

(a) $\frac{2}{3}$

(b) $\frac{1}{2}$

(c) 0.25

(d) 0.75

(e) 1

Item Information	
Item Type	Multiple Select
Page Reference	33
Alignment	6.AF.18
Depth of Knowledge	1
Answer Key	B, C

Option Annotations

A. The student thinks two-thirds is less than or equal to 0.5.
B. Correct
C. Correct
D. The student thinks 0.75 is less than or equal to 0.5.
E. The student thinks 1 is less than or equal to 0.5.

Appendix A: Sample Items

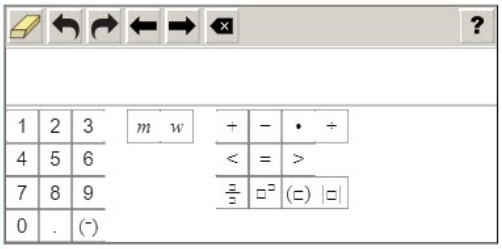
Sample Item 9

The table shows the relationship between the number of words Casey can type and the number of minutes she spends typing.

Casey's Typing

Number of Minutes	Number of Words
2	90
3	135
4	180

Enter an equation that can be used to determine the number of words, *w*, Casey can type in *m* minutes.

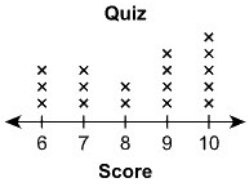


Item Information		Answer Key(s) Description
Item Type	Short Answer	*w* = 45*m* (or equivalent)
Page Reference	37	
Alignment	6.AF.21a	
Depth of Knowledge	2	
Answer Key	(see description)	

Appendix A: Sample Items

Sample Item 10

Some quiz scores are shown in the line plot.



Select the **two** statements that are true.

(a) The median is 8.

(b) The median is 9.

(c) The mean value is less than the median value.

(d) The mean value is greater than the median value.

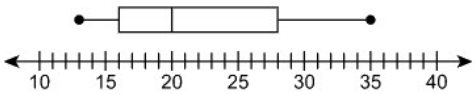
(e) An additional quiz score of 9 changes both the mean and the median.

Item Information		Option Annotations
Item Type	Multiple Select	A. The student choses the value in the middle of the line plot labels, instead of the middle data point. B. Correct C. Correct D. The student incorrectly calculates the mean and/or median. E. The student incorrectly calculates the mean and/or median when an additional data point is included.
Page Reference	40	
Alignment	6.DSP.23b	
Depth of Knowledge	2	
Answer Key	B, C	

Appendix A: Sample Items

Sample Item 11

A box plot is shown.



What is the interquartile range of the box plot?

(a) 4

(b) 12

(c) 20

(d) 22

Item Information	
Item Type	Multiple Choice
Page Reference	41
Alignment	6.DSP.24a
Depth of Knowledge	1
Answer Key	B

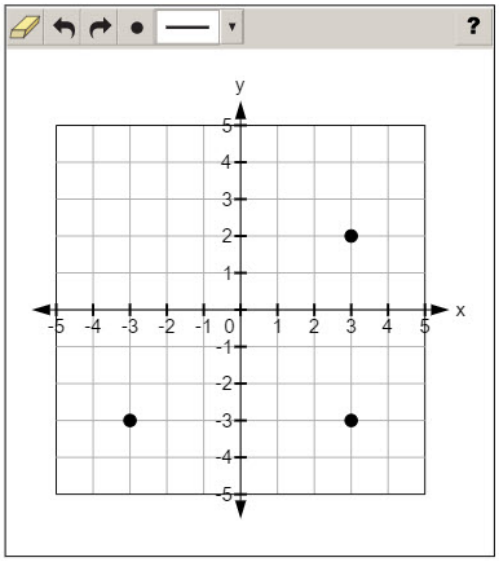
Option Annotations

A. The student thinks the IQR is the difference between the median and the lower quartile.
B. Correct
C. The student identifies the median.
D. The student identifies the range.

Appendix A: Sample Items

Sample Item 12

Three vertices of a rectangle are shown on the coordinate plane. Plot a point to represent the missing vertex of the rectangle.

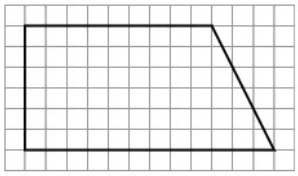


Item Information		Answer Key(s) Description
Item Type	Technology Enhanced	Point plotted at (−3, 2).
Page Reference	43	
Alignment	6.GM.25a	
Depth of Knowledge	2	
Answer Key	(see description)	

Appendix A: Sample Items

Sample Item 13

A figure is shown.



What is the area, in square units, of the figure?

(a) 36

(b) 54

(c) 63

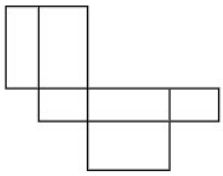
(d) 72

Item Information		Option Annotations
Item Type	Multiple Choice	A. The student attempts to find the perimeter by adding 12 + 6 twice. B. The student finds the area of a 9 by 6 rectangle, ignoring the rest of the figure. C. Correct D. The student finds the area of a 12 by 6 rectangle.
Page Reference	46	
Alignment	6.GM.26	
Depth of Knowledge	1	
Answer Key	C	

Appendix A: Sample Items

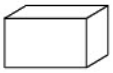
Sample Item 14

A net is shown.



Which three-dimensional figure is represented by the net?

a 

b 

c 

d 

Item Information		Option Annotations
Item Type	Multiple Choice	A. The student recognizes the rectangular base but thinks there are sides with triangle faces. B. Correct C. The student thinks the rectangles in the net are all squares. D. The student recognizes that the shape is a prism but thinks it has triangular bases.
Page Reference	47	
Alignment	6.GM.27	
Depth of Knowledge	2	
Answer Key	B	