# Alabama Comprehensive Assessment Program (ACAP)

# Summative

# Item Specifications

## Mathematics

## Grade 5

# Alabama Item Specifications
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# *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 eight 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** | OA: Operations and Algebraic Thinking |
| **Cluster** | Write and interpret numerical expressions. |
| **Standard (2019 AL COS)** | 5.OA.1: Write, explain, and evaluate simple numerical expressions involving the four operations to solve up to two-step problems. Include expressions involving parentheses, brackets, or braces, using commutative, associative, and distributive properties. |
| Evidence Statements | The student will write, explain, and evaluate simple numerical expressions involving the four operations to solve up to two-step problems. Include expressions involving parentheses, brackets, or braces, using commutative, associative, and distributive properties. |
| Assessment Limits / Content Constraints | Expressions have depth no greater than two (e.g., 3 × [5 + (8 ÷ 2)] is acceptable but 3 × [5 + (8 ÷ {4 x 2})] is not). |
| 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 grouping symbols, evaluate the expression.<br><br>Given a simple expression written in words, identify the expression written numerically.<br><br>Given two expressions with common parts, identify the relationship between the expressions. |

| | |
|---|---|
| **Content Area** | OA: Operations and Algebraic Thinking |
| **Cluster** | Analyze patterns and relationships. |
| **Standard (2019 AL COS)** | 5.OA.2a: Generate two numerical patterns using two given rules and complete an input/output table for the data.<br>a. Use data from an input/output table to identify apparent relationships between corresponding terms. |
| Evidence Statements | The student will use data from an input/output table to identify apparent relationships between corresponding terms. |
| 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 two patterns each represented in an input/output table, identify a relationship between corresponding terms.<br><br>Given two patterns each represented in an input/output table, identify the rule for each pattern.<br><br>Given two patterns each represented in an input/output table, identify missing terms.<br><br>Example input/output tables:<br><br>Pattern 1 (rule: output = input times 3)<br>x \| y<br>1 \| 3<br>2 \| 6<br>3 \| 9<br>4 \| 12<br><br>Pattern 2 (rule: output = input times 4)<br>x \| y<br>1 \| 4<br>2 \| 8<br>3 \| 12<br>4 \| 16 |

| | |
|---|---|
| **Content Area** | OA: Operations and Algebraic Thinking |
| **Cluster** | Analyze patterns and relationships. |
| **Standard (2019 AL COS)** | 5.OA.2b: Generate two numerical patterns using two given rules and complete an input/output table for the data.<br>b. Form ordered pairs from values in an input/output table. |
| Evidence Statements | The student will form ordered pairs from values in an input/output table. |
| 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 two patterns each represented in an input/output table, create ordered pairs of values. |

| | |
|---|---|
| **Content Area** | OA: Operations and Algebraic Thinking |
| **Cluster** | Analyze patterns and relationships. |
| **Standard (2019 AL COS)** | 5.OA.2c: Generate two numerical patterns using two given rules and complete an input/output table for the data.<br>c. Graph ordered pairs from an input/output table on a coordinate plane. |
| Evidence Statements | The student will graph ordered pairs from an input/output table on a coordinate plane. |
| 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 two patterns each represented in an input/output table, graph the ordered pairs on a coordinate plane. |

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|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Understand the place value system. |
| **Standard (2019 AL COS)** | 5.NBT.3a: Using models and quantitative reasoning, explain that in a multi-digit number, including decimals, a digit in any place represents ten times what it represents in the place to its right and 1/10 of what it represents in the place to its left.<br>a. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, using whole-number exponents to denote powers of 10. |
| Evidence Statements | The student will explain patterns in the number of zeros of the product when multiplying a number by powers of 10, using whole-number exponents to denote powers of 10. |
| Assessment Limits / Content Constraints | Tasks have “thin context” or no context.<br><br>Tasks involve patterns in the number of zeros in a substantial way. |
| 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 number (including decimals) and a power of 10, identify a model or explanation that shows patterns in the number of zeros of their product. |

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|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Understand the place value system. |
| **Standard (2019 AL COS)** | 5.NBT.3b: Using models and quantitative reasoning, explain that in a multi-digit number, including decimals, a digit in any place represents ten times what it represents in the place to its right and 1/10 of what it represents in the place to its left.<br>b. Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10, using whole-number exponents to denote powers of 10. |
| Evidence Statements | The student will explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10, using whole-number exponents to denote powers of 10. |
| Assessment Limits / Content Constraints | Tasks have “thin context” or no context.<br><br>Tasks involve patterns in the placement of the decimal point in a substantial way. |
| 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 decimal and a power of 10, identify a model or explanation that shows patterns in the placement of the decimal point of their product or quotient. |

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|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Understand the place value system. |
| **Standard (2019 AL COS)** | 5.NBT.4a: Read, write, and compare decimals to thousandths.<br>a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.<br>*Example*: 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). |
| Evidence Statements | The student will read and write decimals to thousandths using base-ten numerals, number names, and expanded form. |
| Assessment Limits / Content Constraints | Tasks have “thin context” or no context.<br><br>Tasks assess conceptual understanding (e.g., by including a mixture [both within and between items] of expanded form, number names, and base-ten numerals).<br><br>The vocabulary of the item should match the vocabulary of the standard (e.g., base-ten numerals, number names, and expanded form). |
| 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 number in one form (words, standard numeral, expanded form), identify the number in another form. |

| | |
|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Understand the place value system. |
| **Standard (2019 AL COS)** | 5.NBT.4b: Read, write, and compare decimals to thousandths.<br>b. Compare two decimals to thousandths based on the meaning of the digits in each place, using >, =, and < to record the results of comparisons. |
| Evidence Statements | The student will compare two decimals to thousandths based on the meaning of the digits in each place, using >, =, and < to record the results of comparisons. |
| Assessment Limits / Content Constraints | Tasks have “thin context” or no context.<br><br>Tasks assess conceptual understanding (e.g., by including a mixture [both within and between items] of expanded form, number names, and base-ten numerals). |
| 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 decimal to the thousandths, identify the place value of a digit.<br><br>Given a list of decimal inequalities, identify the correct comparison. Numbers should go to the thousandths.<br><br>Given a decimal, identify a decimal that is greater (or less) than the given number. At least one of the numbers must be to the thousandths. |

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|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Understand the place value system. |
| **Standard (2019 AL COS)** | 5.NBT.5: Use place value understanding to round decimals to thousandths. |
| Evidence Statements | The student will use place value understanding to round decimals to thousandths. |
| Assessment Limits / Content Constraints | Tasks have “thin context” or no context. |
| 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 decimal, round the decimal to a specified place value.<br><br>Given a decimal that is rounded to a specified place value, identify a number that could have resulted in that rounding. |

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|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Perform operations with multi-digit whole numbers and decimals to hundredths. |
| **Standard (2019 AL COS)** | 5.NBT.6: Fluently multiply multi-digit whole numbers using the standard algorithm. |
| Evidence Statements | The student will fluently multiply multi-digit whole numbers using the standard algorithm. |
| Assessment Limits / Content Constraints | Tasks assess accuracy. The given factors are such as to require an efficient/standard algorithm (e.g., 26 × 4871).<br><br>Factors in the task do not suggest any obvious ad hoc or mental strategy (as would be present in a case such as 7250 × 40).<br><br>Tasks do not have a context.<br><br>For purposes of assessment, the possibilities are 1-digit × 2-digit, 1-digit × 3-digit, 2-digit × 3-digit, or 2-digit × 4-digit. |
| DOK(s) | 1, 2, or 3 |
| 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 multi-digit whole numbers, find the product of the numbers. |

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|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Perform operations with multi-digit whole numbers and decimals to hundredths. |
| **Standard (2019 AL COS)** | 5.NBT.7: Use strategies based on place value, properties of operations, and/or the relationship between multiplication and division to find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. |
| Evidence Statements | The student will use strategies based on place value, properties of operations, and/or the relationship between multiplication and division to find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors.<br><br>The student will use equations, rectangular arrays, and/or area models to illustrate and explain calculations. |
| Assessment Limits / Content Constraints | Tasks involve 3- or 4-digit dividends and one- or two-digit divisors. |
| 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 whole numbers, find the quotient of one number divided by the other.<br><br>Given two multi-digit whole numbers, identify equation(s), array(s), and/or area model(s) that illustrate the quotient of one number divided by the other. |

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|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Perform operations with multi-digit whole numbers and decimals to hundredths. |
| **Standard (2019 AL COS)** | 5.NBT.8a: Add, subtract, multiply, and divide decimals to hundredths using strategies based on place value, properties of operations, and/or the relationships between addition/subtraction and multiplication/division; relate the strategy to a written method, and explain the reasoning used.<br>a. Use concrete models and drawings to solve problems with decimals to hundredths. |
| Evidence Statements | The student will use concrete models and drawings to solve problems with decimals to hundredths. |
| Assessment Limits / Content Constraints | Tasks do not have a context.<br><br>Each addend is greater than or equal to 0.01 and less than or equal to 99.99.<br><br>The subtrahend and minuend are each greater than or equal to 0.01 and less than or equal to 99.99. Positive differences only.<br>Each factor is greater than or equal to 0.01 and less than or equal to 99.99. The product must not have any nonzero digits beyond the thousandths place.<br><br>Divisors are of the form XY, X0, X, X.Y, 0.XY, 0.X, or 0.0X, where X and Y represent nonzero digits. Dividends are of the form XY, X0, X, XYZ.W, XY0.Z, X00.Y, XY.Z, X0.Y, X.YZ, X.Y, X.0Y, 0.XY, or 0.0X, where X, Y, Z, and W represent nonzero digits.<br><br>Quotients are either whole numbers or decimals terminating at the tenths or hundredths place. |
| DOK(s) | 1, 2, or 3 |
| 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 decimals, find the sum, difference, product, or quotient of the decimals.<br><br>Given two decimals, identify a concrete model or drawing that illustrates the sum, difference, product, or quotient of the decimals. |

| | |
|---|---|
| **Content Area** | NBT: Operations with Numbers: Base Ten |
| **Cluster** | Perform operations with multi-digit whole numbers and decimals to hundredths. |
| **Standard (2019 AL COS)** | 5.NBT.8b: Add, subtract, multiply, and divide decimals to hundredths using strategies based on place value, properties of operations, and/or the relationships between addition/subtraction and multiplication/division; relate the strategy to a written method, and explain the reasoning used.<br>b. Solve problems in a real-world context with decimals to hundredths. |
| Evidence Statements | The student will solve problems in a real-world context with decimals to hundredths. |
| Assessment Limits / Content Constraints | Each addend is greater than or equal to 0.01 and less than or equal to 99.99.<br><br>The subtrahend and minuend are each greater than or equal to 0.01 and less than or equal to 99.99. Positive differences only.<br>Each factor is greater than or equal to 0.01 and less than or equal to 99.99. The product must not have any nonzero digits beyond the thousandths place.<br><br>Divisors are of the form XY, X0, X, X.Y, 0.XY, 0.X, or 0.0X, where X and Y represent nonzero digits. Dividends are of the form XY, X0, X, XYZ.W, XY0.Z, X00.Y, XY.Z, X0.Y, X.YZ, X.Y, X.0Y, 0.XY, or 0.0X, where X, Y, Z, and W represent nonzero digits.<br><br>Quotients are either whole numbers or decimals terminating at the tenths or hundredths place. |
| 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) | |

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|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Use equivalent fractions as a strategy to add and subtract fractions. |
| **Standard (2019 AL COS)** | 5.NF.9: Model and solve real-word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally, and assess the reasonableness of answers.<br>*Example: Recognize an incorrect result* 2/5 + 1/2 = 3/7 *by observing that* 3/7 < 1/2. |
| Evidence Statements | The student will model and solve real-word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, using visual fraction models or equations to represent the problem.<br><br>The student will use benchmark fractions and number sense of fractions to estimate mentally, and assess the reasonableness of answers. |
| Assessment Limits / Content Constraints | Tasks may involve fractions greater than one, including mixed 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 context with two fractions or mixed numbers, find the sum or difference of the numbers.<br><br>Given a context with two fractions or mixed numbers, identify visual fraction model(s) and/or equation(s) that represent the problem.<br><br>Given a context with two fractions or mixed numbers (including one benchmark fraction), identify reasonable and unreasonable estimations of the sum or difference of the numbers. |

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|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Use equivalent fractions as a strategy to add and subtract fractions. |
| **Standard (2019 AL COS)** | 5.NF.10: Add and subtract fractions and mixed numbers with unlike denominators, using fraction equivalence to calculate a sum or difference of fractions or mixed numbers with like denominators. |
| Evidence Statements | The student will add and subtract fractions and mixed numbers with unlike denominators, using fraction equivalence to calculate a sum or difference of fractions or mixed numbers with like denominators. |
| Assessment Limits / Content Constraints | Tasks have no context.<br><br>Tasks ask for the answer or ask for an intermediate step that shows evidence of using equivalent fractions as a strategy.<br><br>Tasks may involve fractions greater than 1 (including fractions equal to whole numbers).<br><br>Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy. |
| DOK(s) | 1, 2, or 3 |
| 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 fractions or mixed numbers, find the sum of the numbers.<br><br>Given two fractions or mixed numbers, find the difference of the numbers. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.11a: Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.<br>a. Model and interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$) |
| Evidence Statements | The student will model and interpret a fraction as division of the numerator by the denominator. |
| 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 a word problem involving division of whole numbers leading to answers in the form of fractions or mixed numbers, identify the solution that models the fraction as a division expression. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.11b: Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.<br>b. Use visual fraction models, drawings, or equations to represent word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. |
| Evidence Statements | The student will use visual fraction models, drawings, or equations to represent word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. |
| 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 a word problem involving division of whole numbers leading to answers in the form of fractions or mixed numbers, identify visual fraction model(s), drawing(s), and/or equation(s) that represent the problem. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.12a: Apply and extend previous understandings of multiplication to find the product of a fraction times a whole number or a fraction times a fraction.<br>a. Use a visual fraction model (area model, set model, or linear model) to show $(a/b) \times q$ and create a story context for this equation to interpret the product as $a$ parts of a partition of $q$ into $b$ equal parts. |
| Evidence Statements | The student will use a visual fraction model to show $(a/b) \times q$ and create a story context for this equation to interpret the product as $a$ parts of a partition of $q$ into $b$ equal parts. |
| 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 a fraction and a whole number, identify a visual fraction model that represents the product of the numbers.<br><br>Given a fraction and a whole number, identify a story context that represents the product of the numbers. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.12b: Apply and extend previous understandings of multiplication to find the product of a fraction times a whole number or a fraction times a fraction.<br>b. Use a visual fraction model (area model, set model, or linear model) to show ($a/b$) × ($c/d$) and create a story context for this equation to interpret the product. |
| Evidence Statements | The student will use a visual fraction model (area model, set model, or linear model) to show ($a/b$) × ($c/d$) and create a story context for this equation to interpret the product. |
| 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 two fractions, identify a visual fraction model that represents the product of the numbers.<br><br>Given two fractions, identify a story context that represents the product of the numbers. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.12c: Apply and extend previous understandings of multiplication to find the product of a fraction times a whole number or a fraction times a fraction.<br>c. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. |
| Evidence Statements | The student will multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. |
| 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 a rectangle with fractional edge lengths, find the area of the rectangle. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.12d: Apply and extend previous understandings of multiplication to find the product of a fraction times a whole number or a fraction times a fraction.<br>d. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths to show that the area is the same as would be found by multiplying the side lengths. |
| Evidence Statements | The student will find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths to show that the area is the same as would be found by multiplying the side lengths. |
| 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) | |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.13a: Interpret multiplication as scaling (resizing).<br>a. Compare the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.<br>*Example: Use reasoning to determine which expression is greater.*<br>225 *or* 3/4 × 225; 11/50 *or* 3/2 × 11/50 |
| Evidence Statements | The student will compare the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. |
| Assessment Limits / Content Constraints | Insofar as possible, tasks are designed to be completed without performing the indicated multiplication.<br><br>Products involve at least one factor that is a fraction or mixed number. |
| 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 numbers, explain how the product compares to one of the factors based on the other factor being greater (or less) than 1.<br><br>Given a number, identify another number that can be multiplied to create a product that is greater (or less) than the given number. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.13b: Interpret multiplication as scaling (resizing).<br>b. Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number and relate the principle of fraction equivalence. |
| Evidence Statements | The student will explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number and relate the principle of fraction equivalence. |
| 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 two numbers, explain how the product compares to one of the factors based on the other factor being greater than 1.<br><br>Given a number, identify another number that can be multiplied to create a product that is greater than the given number. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.13c: Interpret multiplication as scaling (resizing).<br>c. Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number and relate the principle of fraction equivalence. |
| Evidence Statements | The student will explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number and relate the principle of fraction equivalence. |
| 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 two numbers, explain how the product compares to one of the factors based on the other factor being less than 1.<br><br>Given a number, identify another number that can be multiplied to create a product that is less than the given number. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.14: Model and solve real-world problems involving multiplication of fractions and mixed numbers using visual fraction models, drawings, or equations to represent the problem. |
| Evidence Statements | The student will model and solve real-world problems involving multiplication of fractions and mixed numbers using visual fraction models, drawings, or equations to represent the problem. |
| 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 a real-world context involving two fractions or mixed numbers, identify visual fraction model(s), drawing(s), and/or equation(s) that represent the problem. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.15a: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.<br>a. Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions and illustrate using visual fraction models, drawings, and equations to represent the problem. |
| Evidence Statements | The student will solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions and illustrate using visual fraction models, drawings, and equations to represent the problem. |
| Assessment Limits / Content Constraints | Tasks involve equal group (partition) situations with part size unknown and number of parts unknown. |
| 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 real-world context involving division of unit fractions by whole numbers or whole numbers by unit fractions, solve the problem.<br><br>Given a real-world context involving division of unit fractions by whole numbers or whole numbers by unit fractions, identify visual fraction model(s), drawing(s), and/or equation(s) that represent the problem. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.15b: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.<br>b. Create a story context for a unit fraction divided by a whole number, and use a visual fraction model to show the quotient. |
| Evidence Statements | The student will create a story context for a unit fraction divided by a whole number, and use a visual fraction model to show the quotient. |
| 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 the division of a unit fraction by a whole number, identify a story context for the situation.<br><br>Given the division of a unit fraction by a whole number, identify a visual fraction model that represents the quotient. |

| | |
|---|---|
| **Content Area** | NF: Operations with Numbers: Fractions |
| **Cluster** | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. |
| **Standard (2019 AL COS)** | 5.NF.15c: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.<br>c. Create a story context for a whole number divided by a unit fraction, and use a visual fraction model to show the quotient. |
| Evidence Statements | The student will create a story context for a whole number divided by a unit fraction, and use a visual fraction model to show the quotient. |
| 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 the division of a whole number by a unit fraction, identify a story context for the situation.<br><br>Given the division of a whole number by a unit fraction, identify a visual fraction model that represents the quotient. |

| | |
|---|---|
| **Content Area** | DA: Data Analysis |
| **Cluster** | Represent and interpret data. |
| **Standard (2019 AL COS)** | 5.DA.16a: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8).<br>a. Add, subtract, multiply, and divide fractions to solve problems involving information presented in line plots.<br>*Note: Division is limited to unit fractions by whole numbers and whole numbers by unit fractions.* |
| Evidence Statements | The student will make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8).<br><br>The student will add, subtract, multiply, and divide fractions to solve problems involving information presented in line plots. |
| Assessment Limits / Content Constraints | Tasks requiring students to produce a line plot should only involve the fractions 1/2, 1/4, or 1/8.<br><br>Division is limited to unit fractions by whole numbers and whole numbers by unit fractions. |
| 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 data set, identify a line plot representing the data.<br><br>Given a line plot, find the total of the data in the data set. |

| | |
|---|---|
| **Content Area** | M: Measurement |
| **Cluster** | Convert like measurement units within a given measurement system. |
| **Standard (2019 AL COS)** | 5.M.17: Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real-world problems. |
| Evidence Statements | The student will convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real-world problems. |
| 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 a measurement in one unit, convert the measurement to a different unit.<br><br>Given a multi-step, real-world problem that includes measurement conversion within one system, solve the problem. |

| | |
|---|---|
| **Content Area** | M: Measurement |
| **Cluster** | Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. |
| **Standard (2019 AL COS)** | 5.M.18a: Identify volume as an attribute of solid figures, and measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised (non-standard) units.<br>a. Pack a solid figure without gaps or overlaps using *n* unit cubes to demonstrate volume as *n* cubic units. |
| Evidence Statements | The student will identify volume as an attribute of solid figures, and measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised (non-standard) units.<br><br>The student will pack a solid figure without gaps or overlaps using *n* unit cubes to demonstrate volume as *n* cubic units. |
| Assessment Limits / Content Constraints | Tasks assess conceptual understanding of volume as applied to a specific situation–not applying a volume formula. |
| 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 rectangular prism partitioned with unit cubes, find the volume of the prism.<br><br>Given a description of a solid figure being packed with *n* unit cubes, identify the volume of the solid figure as *n* cubic units. |

| | |
|---|---|
| **Content Area** | M: Measurement |
| **Cluster** | Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. |
| **Standard (2019 AL COS)** | 5.M.19a: Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume.<br>a. Use the associative property of multiplication to find the volume of a right rectangular prism and relate it to packing the prism with unit cubes. Show that the volume can be determined by multiplying the three edge lengths or by multiplying the height by the area of the base. |
| Evidence Statements | The student will use the associative property of multiplication to find the volume of a right rectangular prism and relate it to packing the prism with unit cubes. Show that the volume can be determined by multiplying the three edge lengths or by multiplying the height by the area of the base. |
| 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) | |

| | |
|---|---|
| **Content Area** | M: Measurement |
| **Cluster** | Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. |
| **Standard (2019 AL COS)** | 5.M.19b: Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume.<br>b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. |
| Evidence Statements | The student will apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. |
| Assessment Limits / Content Constraints | Tasks are with and without contexts.<br><br>Tasks may require students to measure to find edge lengths to the nearest cm, mm, or in. |
| 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 the dimensions of a rectangular prism in a real-world or mathematical problem, find the volume of the prism. Dimensions can be given in words or in a graphic. |

| | |
|---|---|
| **Content Area** | M: Measurement |
| **Cluster** | Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. |
| **Standard (2019 AL COS)** | 5.M.19c: Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume.<br>c. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the two parts, applying this technique to solve real-world problems. |
| Evidence Statements | The student will find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the two parts and apply this technique to solve real-world problems. |
| Assessment Limits / Content Constraints | Tasks require students to solve a contextual problem by applying the indicated concepts and skills. |
| 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 solid figure made up of rectangular prisms, find the volume of the figure. |

| | |
|---|---|
| **Content Area** | G: Geometry |
| **Cluster** | Graph points on the coordinate plane to solve real-world and mathematical problems. |
| **Standard (2019 AL COS)** | 5.G.20: Graph points in the first quadrant of the coordinate plane, and interpret coordinate values of points to represent real-world and mathematical problems. |
| Evidence Statements | The student will graph points in the first quadrant of the coordinate plane, and interpret coordinate values of points to represent real-world and mathematical problems. |
| 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 a context involving a point on a coordinate grid, identify the coordinates of the point.<br><br>Given a context involving the coordinates of a point, identify the point on a coordinate grid.<br><br>Given a context involving the coordinates of a point, identify the meaning of the point in the context. |

| | |
|---|---|
| **Content Area** | G: Geometry |
| **Cluster** | Classify two-dimensional figures into categories based on their properties. |
| **Standard (2019 AL COS)** | 5.G.21: Classify triangles according to side length (isosceles, equilateral, scalene) and angle measure (acute, obtuse, right, equiangular). |
| Evidence Statements | The student will classify triangles according to side length (isosceles, equilateral, scalene) and angle measure (acute, obtuse, right, equiangular). |
| 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) | |

| | |
|---|---|
| **Content Area** | G: Geometry |
| **Cluster** | Classify two-dimensional figures into categories based on their properties. |
| **Standard (2019 AL COS)** | 5.G.22: Classify quadrilaterals in a hierarchy based on properties. |
| Evidence Statements | The student will classify quadrilaterals in a hierarchy based on properties. |
| 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 a list of quadrilaterals, identify the quadrilaterals that belong to the same hierarchical category.<br><br>Given a list of quadrilaterals, identify the hierarchical category that describes all the given quadrilaterals.<br><br>Given a list of statements about quadrilaterals, identify the true statement. |

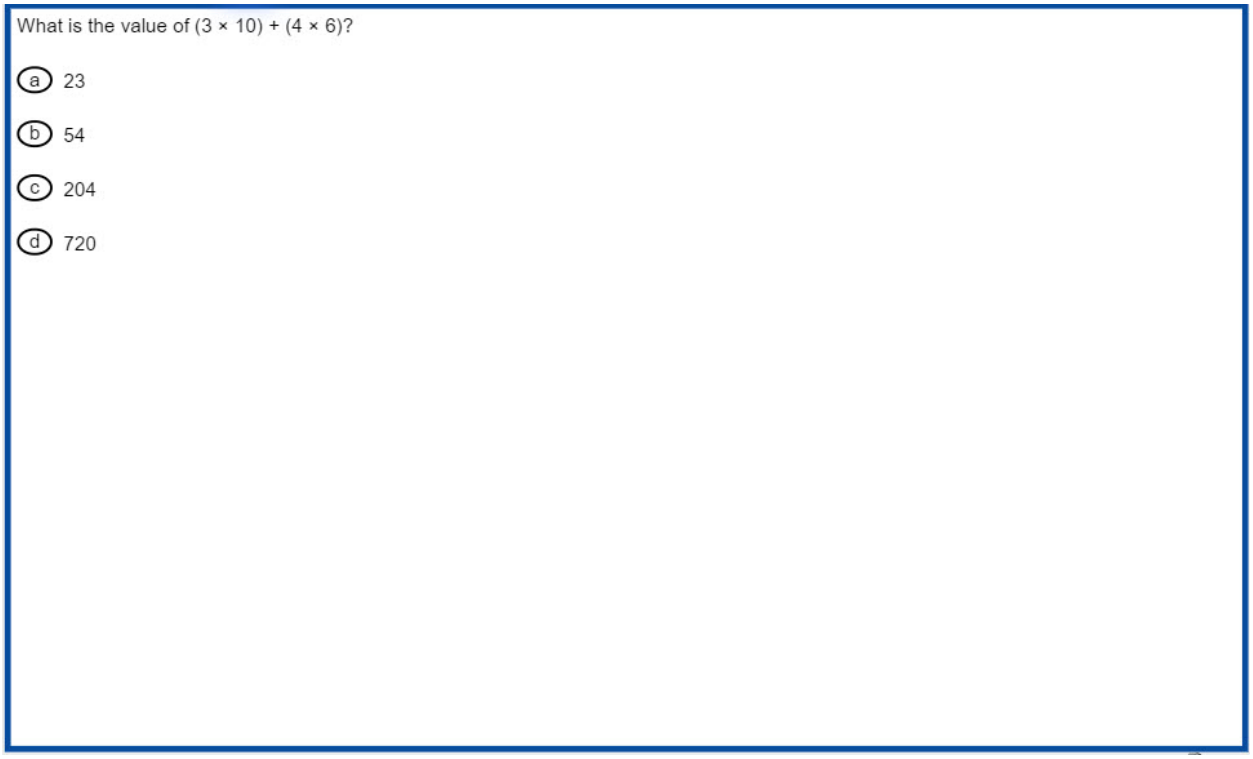
| | |
|---|---|
| **Content Area** | G: Geometry |
| **Cluster** | Classify two-dimensional figures into categories based on their properties. |
| **Standard (2019 AL COS)** | 5.G.23: Explain that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *Example: All rectangles have four right angles, and squares have four right angles, so squares are rectangles.* |
| Evidence Statements | The student will explain that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. |
| 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 two shapes, identify common attributes of the shapes.<br><br>Given a list of statements about a shape, identify the true statement. |

**Appendix A: Sample Items**

# Sample Items

## Appendix A: Sample Items

### Sample Item 1




| Item Information | | Option Annotations |
|---|---|---|
| Item Type | Multiple Choice | A. The student adds all of the values.<br>B. Correct<br>C. The student evaluates from left to right.<br>D. The student multiplies both quantities instead of adding. |
| Page Reference | 9 | |
| Alignment | 5.OA.1 | |
| Depth of Knowledge | 2 | |
| Answer Key | B | |

## Appendix A: Sample Items

### Sample Item 2

Sarah and Mike are making stress balls out of balloons and sand. Sarah starts making stress balls before Mike and has already made 2 stress balls when Mike starts. The table shows the total number of stress balls each person has made after each minute once Mike starts.

**Making Stress Balls**

| Minutes Since Mike Started | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Stress Balls Made by Sarah | 2 | 4 | 6 | 8 | 10 |
| Stress Balls Made by Mike | 0 | 3 | 6 | 9 | 12 |

Which statement is correct?

(a) Mike makes one more stress ball than Sarah every minute.

(b) Mike makes twice as many stress balls as Sarah every minute.

(c) Sarah and Mike make the same number of stress balls every minute.

(d) Five minutes after Mike started, Sarah has made more stress balls than Mike has made.

| Item Information | |
|---|---|
| Item Type | Multiple Choice |
| Page Reference | 10 |
| Alignment | 5.OA.2a |
| Depth of Knowledge | 3 |
| Answer Key | A |

**Option Annotations**

A. Correct
B. The student incorrectly compares the rates and only notices that Mike makes more, equating that to twice as much.
C. The student only considers one data point instead of the rates.
D. The student does not recognize that Mike has a faster rate, so we will always have more made after the second minute.

## Appendix A: Sample Items

### Sample Item 3

What is 682.301 written in expanded form?

(a) $(6 \times 100) + (8 \times 10) + (2 \times 1) + \left(3 \times \frac{1}{10}\right) + \left(1 \times \frac{1}{100}\right)$

(b) $(6 \times 100) + (8 \times 10) + (2 \times 1) + (3 \times 10) + (1 \times 1{,}000)$

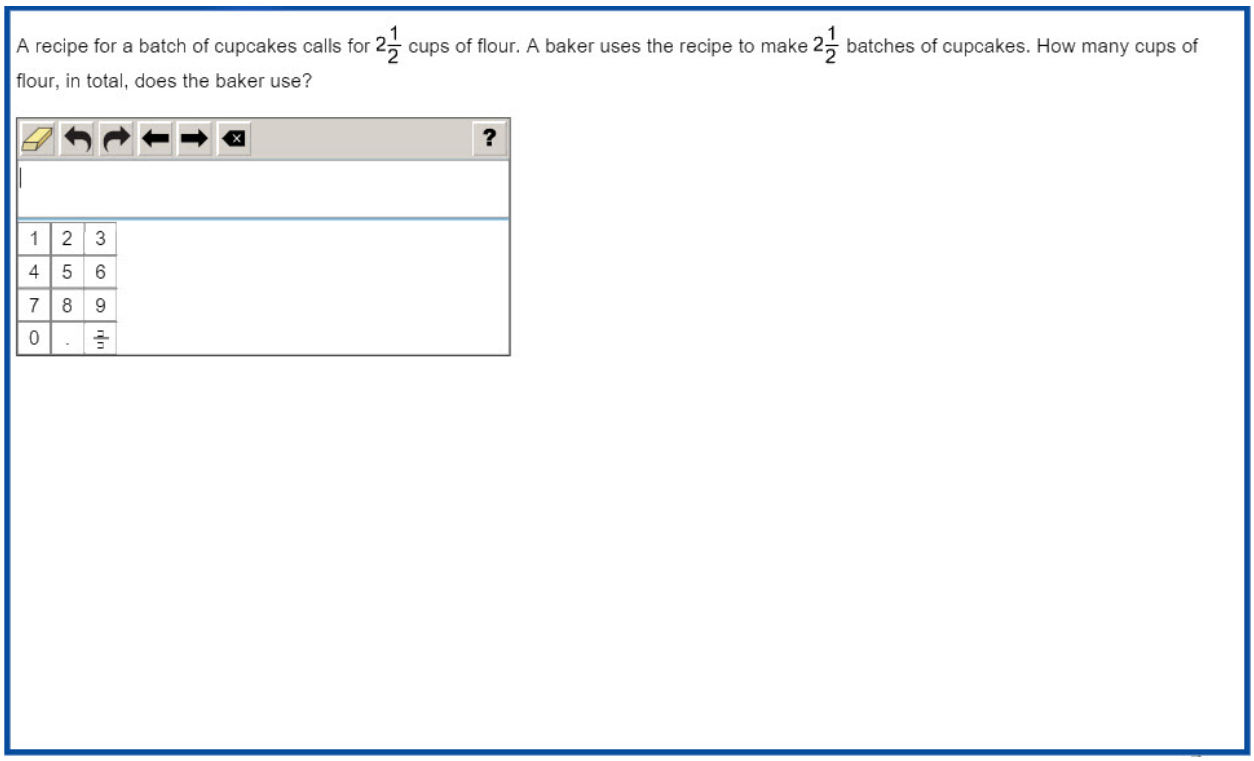
(c) $(6 \times 100) + (8 \times 10) + (2 \times 1) + \left(3 \times \frac{1}{10}\right) + \left(1 \times \frac{1}{1{,}000}\right)$

(d) $(6 \times 100{,}000) + (8 \times 10{,}000) + (2 \times 1{,}000) + (3 \times 100) + (1 \times 1)$

| Item Information | | Option Annotations |
|---|---|---|
| Item Type | Multiple Choice | A. The student confuses hundredths and thousandths.<br>B. The student uses tens instead of tenths and thousands instead of thousandths.<br>C. Correct<br>D. The student confuses the placement of the decimal point. |
| Page Reference | 15 | |
| Alignment | 5.NBT.4a | |
| Depth of Knowledge | 1 | |
| Answer Key | C | |

## Appendix A: Sample Items

### Sample Item 4

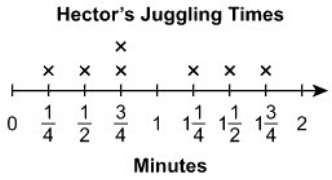



| Item Information | | Answer Key(s) Description |
|---|---|---|
| Item Type | Short Answer | $6\frac{1}{4}$ (or equivalent) |
| Page Reference | 33 | |
| Alignment | 5.NF.14 | |
| Depth of Knowledge | 2 | |
| Answer Key | (see description) | |

## Appendix A: Sample Items

### Sample Item 5

Hector is practicing juggling. He records the lengths of time he juggles without dropping anything for 7 attempts. His times, rounded to the nearest $\frac{1}{4}$ of a minute, are shown in the line plot.



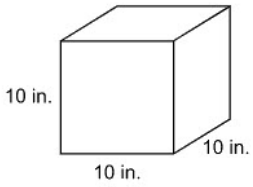

What is the total length of time, in minutes, Hector juggled for his 2 longest attempts?


| Item Information | | Answer Key(s) Description |
|---|---|---|
| Item Type | Short Answer | $3\frac{1}{4}$ (or equivalent) |
| Page Reference | 37 | |
| Alignment | 5.DA.16a | |
| Depth of Knowledge | 2 | |
| Answer Key | (see description) | |

## Appendix A: Sample Items

### Sample Item 6

Wyatt has 2 cubes that he stacks side by side to make a large storage container. One of Wyatt's cubes is shown.




What is the total volume, in cubic inches, of the large storage container?

(a) 100

(b) 200

(c) 1,000

(d) 2,000

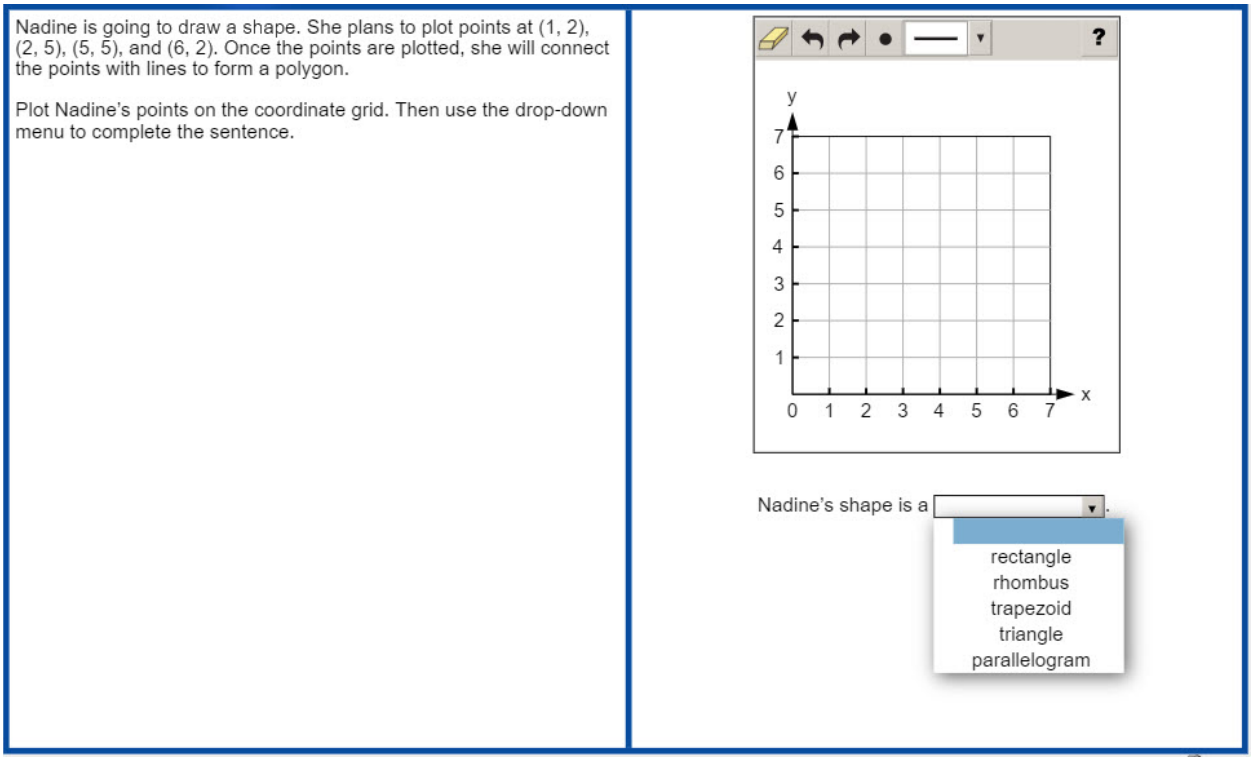
| Item Information | |
|---|---|
| Item Type | Multiple Choice |
| Page Reference | 42 |
| Alignment | 5.M.19c |
| Depth of Knowledge | 2 |
| Answer Key | D |

**Option Annotations**

A. The student finds the area of one face of the cube instead of the volume.
B. The student finds the area of one face of the cube, and multiplies it by 2, since there are 2 cubes.
C. The student finds the volume of the cube, but does not multiply it by 2.
D. Correct

## Appendix A: Sample Items

### Sample Item 7




| Item Information | | Answer Key(s) Description |
|---|---|---|
| Item Type | Technology Enhanced | Figure plotted with vertices at the points given is a quadrilateral that has exactly one pair of parallel sides.<br><br>Nadine's shape is a trapezoid. |
| Page Reference | 43 | |
| Alignment | 5.G.20 | |
| Depth of Knowledge | 2 | |
| Answer Key | (see description) | |

## Appendix A: Sample Items

### Sample Item 8

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

(a) All trapezoids have four sides.

(b) All quadrilaterals have four equal sides.

(c) All squares have four equal sides.

(d) All squares have four right angles.

(e) All trapezoids have four right angles.

(f) All quadrilaterals have four right angles.

| Item Information | |
|---|---|
| Item Type | Multiple Select |
| Page Reference | 46 |
| Alignment | 5.G.23 |
| Depth of Knowledge | 1 |
| Answer Key | A, C, D |

**Option Annotations**

A. Correct
B. The student confuses quadrilaterals with the attributes of a rhombus.
C. Correct
D. Correct
E. The student confuses trapezoids with the attributes of a rectangle.
F. The student confuses quadrilaterals with the attributes of a rectangle.