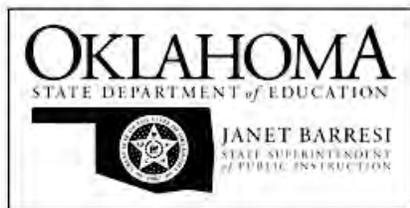
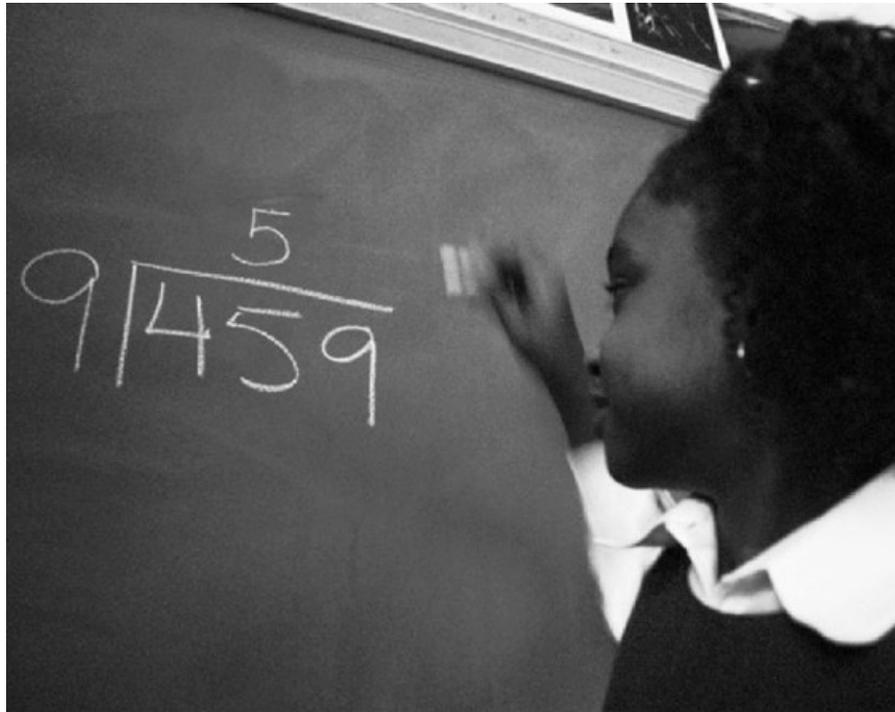


**OKLAHOMA SCHOOL TESTING PROGRAM
OKLAHOMA MODIFIED ALTERNATE
ASSESSMENT PROGRAM**

Test and Item Specifications

Mathematics
Grade 6



2012–2013 Edition

Oklahoma State Department of Education
Oklahoma City, Oklahoma

Revised
March 2013

OKLAHOMA MODIFIED ALTERNATE ASSESSMENT PROGRAM

TEST AND ITEM SPECIFICATIONS

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Purpose

The purpose of this test is to measure Oklahoma sixth-grade students' level of proficiency in mathematics. On the Grade 6 Mathematics Test, students are required to respond to a variety of items linked to the sixth-grade mathematics content standards identified in the *Oklahoma College, Career, and Citizen Ready (C³) Standards*. All Mathematics Test test forms will assess the identified standards and objectives listed below. The following standards and objectives are intended to summarize the knowledge as identified in the *Oklahoma C³ Standards*.

Oklahoma C³ Standards and Objectives
<p>Algebraic Reasoning: Patterns and Relationships</p> <ul style="list-style-type: none"> • Algebra Patterns (1.1) • Expressions and Equations (1.2) • Number Properties (1.3) • Solving Equations (1.4)
<p>Number Sense and Operation</p> <ul style="list-style-type: none"> • Number Sense (2.1) • Number Operations (2.2)
<p>Geometry</p> <ul style="list-style-type: none"> • Three Dimensional Figures (3.1) • Congruent and Similar Figures (3.2) • Coordinate Geometry (3.3)
<p>Measurement</p> <ul style="list-style-type: none"> • Circles (4.1) • Conversions (4.2)
<p>Data Analysis</p> <ul style="list-style-type: none"> • Data Analysis (5.1) • Probability (5.2) • Central Tendency (5.3)



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General Considerations

It is necessary to create test items that are reliable, fair, and targeted to the *Oklahoma C³* standards listed on the following pages. There are some general considerations and procedures for effective item development. These considerations include, but are not limited to, the following:

1. Each test form contains items assessing all content standards listed in the Test Blueprint for eighth-grade mathematics.
2. Test items that assess each standard are not limited to one particular type of response format.
3. Test questions attempt to focus on content that is authentic and that eighth-grade students can relate to and understand.
4. Test items are worded precisely and clearly.
5. All items are reviewed to eliminate language that shows bias or is otherwise likely to disadvantage a particular group of students. That is, items do not display unfair representations of gender, race, disability, culture, or religion, nor do items contain elements that are offensive to any such group.
6. All answer choices in multiple-choice items (the key and all distractors) are similar in length and syntax. Students should not be able to rule out a wrong answer or identify a correct response solely because it looks or sounds different from the other answer choices. Distractors are created so that students reason their way to the correct answer rather than simply identify incorrect responses because of a distractor's obviously inappropriate nature. Distractors should always be plausible (but incorrect) in the context of the item stem. Correct responses are approximately equally distributed among A's, B's, and C's.

Universal Test Design Considerations

Universal design, as applied to assessments, is a concept that allows the widest possible range of students to participate in assessments and may even reduce the need for accommodations and alternative assessments by expanding access to the tests themselves. In the Oklahoma Modified Alternate Assessment Program, modifications have been made to some items that simplify and clarify instructions and provide maximum readability, comprehensibility, and legibility.

Universal Modifications

- Minimize the number of questions on the page (limit to 2 or 3).
- Use a larger font size.
- Provide only three answer options instead of four.
- Highlight the main points in the question or passage by underlining and using boldface.
- Allow for the same accommodations as in the standard assessment.
- Avoid questions that require students to select the better/best answer.
- Eliminate answer choices that give students the option of making no changes to the item.
- Be consistent in wording of directions across grades and subjects.
- Minimize the use of pronouns and prepositional phrases.
- Avoid the use of multiple-meaning words and words that can function as more than part of speech.
- Enlarge art when possible.
- Simplify art when possible, (i.e. removing unnecessary labels, use less gray scale, use thicker lines when outlining, etc.).
- Box informational text in an item.
- Bullet information when possible (e.g. bullet detailed information or processes).
- Reduce reading load of stem, stimuli, and answer options when possible.
- Use Verdana font.
- Revise answer options to address parallelism and minimize outliers.

Mathematics Items

- Allow for read-aloud and calculators format.
- For lower grades, display numbers on all sides of figures for questions about perimeter.
- Unless required by standard, avoid items with negative and positive answer choices that use the same number.
- Place any items with coordinate grids on one page.
- For lower grades, use grids for questions.
- Be consistent with qualifiers in the stem and answer choices.
- Avoid questions that use best or closest.
- Avoid complicated art.
- List coordinate grids in answer options vertically with plenty of space between the answer options to make the grid more accessible to the visually impaired (however, avoid spanning item over two pages).
- Simplify reading load, including vocabulary, when possible.
- Eliminate stimuli sets.
- Delete one part of a compound answer choice when possible.
- Delete griddable items, negative items, and items that cannot be modified based on guidelines.

- Delete extraneous information including irrelevant material and unnecessary words in items or graphics.
- Simplify complex sentence structure and vocabulary in item and answer choices without eliminating math vocabulary.
- Change passive voice to active voice when appropriate.
- Add precise language to provide additional context for clarification.
- Use consistent language within an item in order to focus student attention on what is being asked.
- Revise text as necessary to maintain the authenticity and logic of the item due to modifications.
- Use bullets to clearly organize complex items into smaller, meaningful parts.
- Direct student attention to graphics.

Universal Modifications

- Simplify visual complexity of graphics.
- Provide new text and/or reorganize existing text within the question to explain or clarify the graphic.
- Provide additional graphics to support text, emphasize ideas, and facilitate comprehension.
- Reduce the number of variables and simplify digits in item when appropriate.
- Limit the number of steps and/or operations in multi-step problems.
- Provide appropriate formula and/or conversion near the item.
- Provide explicit directions to explain a process such as measuring (as long as it does not impact reading load).

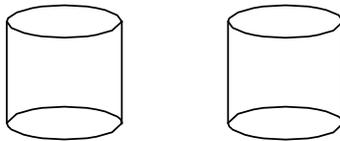
Below is an example of an OCCT item followed by a modified version of the item. The modified version of the item was created using the modification list on pages 5 and 6.

OCCT Oklahoma C³ 3.2 Sample Item:

Depth of Knowledge: 1

Correct Answer: D

Albert correctly stated that these two figures are congruent.



Which statement best describes what it means for these figures to be congruent?

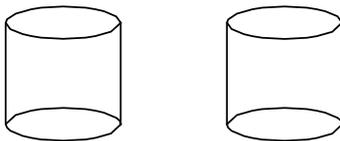
- (A) Both figures have the same shape but are different sizes.
- (B) Both figures have the same height but a different radius.
- (C) Both figures have the same radius but a different height.
- (D) Both figures have the same shape and same size.

Modified OMAAP Oklahoma C 3.2 Sample Item:

Depth of Knowledge: 1

Correct Answer: C

These two figures are congruent.



Which statement describes what it means for these figures to be congruent?

- (A) Both figures have the same shape but are different sizes.
- (B) Both figures have the same height but a different radius.
- (C) Both figures have the same shape and same size.

Multiple-Choice Item Rules

- All items clearly indicate what is expected in a response and help students focus on their response.
- Each multiple-choice item has a stem (question, statement, or incomplete statement, and/or graphic component) and three answer (or completion) options, only one of which is correct.
- Multiple-choice item stems present a complete problem so that students know what to do before looking at the answer choices; students should not need to read all answer choices before knowing what is expected.

In summary, mathematics-test items assess whether students understand mathematical concepts and procedures, communicate their understandings effectively in mathematical terms, approach problems, and develop viable solutions.

All items developed using these specifications are reviewed by Oklahoma educators and approved by the Oklahoma State department of Education. The distribution of newly developed or modified items is based on content and process alignment, difficulty, cognitive ability, percentage of art/graphics, and grade level appropriateness as determined by an annual Item Development Plan approved by the Oklahoma State Department of Education.

Test Structure, Format, and Scoring

The test will consist of 40 operational multiple-choice items, which will be written at a reading level two grade levels below a sixth-grade audience and will include three responses from which to choose: the correct answer and two distractors.

Each multiple-choice item is scored as correct or incorrect. The student's raw score is converted to a scaled score using the number correct scoring method.

Test Alignment with Oklahoma C³ Standards

Criteria for Aligning the Test with the <i>Oklahoma C³</i> Standards and Objectives	
1. Categorical Concurrence	The test is constructed so that there are at least six items measuring each <i>Oklahoma C³</i> standard, with the content category consistent with the related standard. The number of items, six, is based on estimating the number of items that could produce a reasonably reliable estimate of a student's mastery of the content measured.
2. Depth of Knowledge Consistency	The test is constructed using items from a variety of Depth of Knowledge levels that are consistent with the processes students need in order to demonstrate proficiency for each <i>Oklahoma C³</i> objective.
3. Range of Knowledge Correspondence	The test is constructed so that at least 50% of the objectives for a <i>Oklahoma C³</i> standard have at least one corresponding assessment item.
4. Balance of Representation	The test is constructed according to the Test Blueprint, which reflects the degree of representation given on the test to each <i>Oklahoma C³</i> standard and objective in terms of the percentage of total test items measuring each standard and the number of test items measuring each objective.
5. Source of Challenge	Each test item is constructed in such a way that the major cognitive demand comes directly from the targeted <i>Oklahoma C³</i> objective or concept being assessed, not from specialized knowledge or cultural background that the test-taker may bring to the testing situation.

Test Blueprint

The Test Blueprint reflects the degree to which each *Oklahoma C³* standard and objective is represented on the test. The overall distribution of operational items in a test form is intended to look as follows:

<i>Oklahoma C³</i> Standards & Objectives	Ideal Number of Items for Alignment to <i>Oklahoma C³*</i>	Ideal Percentage of Items ¹
Algebraic Reasoning: Patterns and Relationships	10–11	18–24%
Algebra Patterns (1.1)	2–3	
Expressions and Equations (1.2)	2–3	
Number Properties (1.3)	2–3	
Solving Equations (1.4)	2–3	
Number Sense and Operation	12–13	28%–30%
Number Sense (2.1)	3–5	
Number Operations (2.2)	7–9	
Geometry	6–7	14%–16%
Three Dimensional Figures (3.1)	1–3	
Congruent and Similar Figures (3.2)	1–3	
Coordinate Geometry (3.3)	1–3	
Measurement	6–7	14%–16%
Circles (4.1)	3–4	
Conversions (4.2)	2–3	
Data Analysis	6–7	14%–16%
Data Analysis (5.1)	1–3	
Probability (5.2)	1–3	
Central Tendency (5.3)	1–3	
Total Test	40–43²	100%

¹ Percentages are approximations and may result in a sum other than 100 due to rounding.

² The actual number of items scored for a student may be slightly lower pending a review of item statistics.

* Student performance on the multiple-choice test will be reported at the standard level.

Overview of Item Specifications

For each *Oklahoma C³* standard, item specifications are organized under the following headings:

- *Oklahoma C³* Standard and *Oklahoma C³* Objective
- Item Specifications
 - a. Emphasis
 - b. Stimulus Attributes
 - c. Format
 - d. Content Limits
 - e. Distractor Domain
 - f. Sample Test Items

The headings “*Oklahoma C³* Standard” and “*Oklahoma C³* Objective” state the standard and objective being measured as found in the sixth-grade mathematics section of the *Oklahoma C³Standards* document.

The heading “Item Specifications” highlights important points about the items’ emphasis, stimulus attributes, format, content limits, and distractor domain. Although it is sometimes possible to score single items for more than one concept, all items in these tests are written to address a single content standard as the primary concept.

All items will assess objectives using only depth-of-knowledge levels 1, 2, or 3. Descriptions of the depth-of-knowledge levels for Mathematics are as follows:

Level 1 requires the student to recall facts, terms, definitions, or simple procedures; perform simple algorithms; or apply formulas. One-step, well-defined, or straight algorithmic procedures should be included at this level.

Level 2 requires the student to make some decisions as to how to approach the problem or activity. Level 2 activities include making observations and collecting data; classifying, comparing, and organizing data; and organizing and displaying data in tables, charts, and graphs.

Level 3 requires complex reasoning, planning, developing, using evidence, and a higher level of thinking. Level 3 activities include making conjectures, drawing conclusions from observations, citing evidence, developing a logical argument for concepts, explaining phenomena in terms of concepts, and using concepts to solve nonroutine problems.

Depth of Knowledge Assessed by Test Items

The test will approximately reflect the following depth of knowledge distribution of items:

Depth of Knowledge	Percentage of Items
Level 1—Recall	20-25%
Level 2—Basic Reasoning	60-65%
Level 3—Complex and Extended Reasoning	10-15%

This is the ideal depth of knowledge distribution of items. There may be slight differences in the actual distribution of the upcoming testing session.

Note about the Item Specifications and Sample Items:

With the exception of content limits, the item specifications give suggestions of what might be included and do not give an exhaustive list of what can be included.

These sample test items are not intended to be definitive in nature or construction, as the stimuli and test items may differ from one test form to another, as may their presentation.

MATHEMATICS PROCESS STANDARDS

Grade 6

The National Council of Teachers of Mathematics (NCTM) has identified five process standards: Problem Solving, Reasoning and Proof, Communication, Connections, and Representation. Active involvement by students using these processes is likely to broaden mathematical understandings and lead to increasingly sophisticated abilities required to meet mathematical challenges in meaningful ways.

Process Standard 1: Problem Solving

1. Develop and test strategies to solve practical, everyday problems which may have single or multiple answers.
2. Use technology to generate and analyze data to solve problems.
3. Formulate problems from situations within and outside of mathematics and generalize solutions and strategies to new problem situations.
4. Evaluate results to determine their reasonableness.
5. Apply a variety of strategies (e.g., restate the problem, look for a pattern, diagrams, solve a simpler problem, work backwards, trial and error) to solve problems, with emphasis on multistep and non-routine problems.
6. Use oral, written, concrete, pictorial, graphical, and/or algebraic methods to model mathematical situations.

Process Standard 2: Communication

1. Discuss, interpret, translate (from one to another) and evaluate mathematical ideas (e.g., oral, written, pictorial, concrete, graphical, algebraic).
2. Reflect on and justify reasoning in mathematical problem solving (e.g., convince, demonstrate, formulate).
3. Select and use appropriate terminology when discussing mathematical concepts and ideas.

Process Standard 3: Reasoning

1. Identify and extend patterns and use experiences and observations to make suppositions.
2. Use counter examples to disprove suppositions (e.g., all squares are rectangles, but are all rectangles squares?).
3. Develop and evaluate mathematical arguments (e.g., agree or disagree with the reasoning of other classmates and explain why).
4. Select and use various types of reasoning (e.g., recursive [loops], inductive [specific to general], deductive [general to specific], spatial, and proportional).

Process Standard 4: Connections

1. Apply mathematical strategies to solve problems that arise from other disciplines and the real world.
2. Connect one area or idea of mathematics to another (e.g., relate equivalent number representations to each other, relate experiences with geometric shapes to understanding ratio and proportion).

Process Standard 5: Representation

1. Use a variety of representations to organize and record data (e.g., use concrete, pictorial, and symbolic representations).
2. Use representations to promote the communication of mathematical ideas (e.g., number lines, rectangular coordinate systems, scales to illustrate the balance of equations).
3. Develop a variety of mathematical representations that can be used flexibly and appropriately (e.g., base-10 blocks to represent fractions and decimals, appropriate graphs to represent data).
4. Use a variety of representations to model and solve physical, social, and mathematical problems (e.g., geometric objects, pictures, charts, tables, graphs).

OKLAHOMA COLLEGE, CAREER, AND CITIZEN READY (C³) STANDARDS**Grade 6****Mathematics**

Asterisks (*) have been used to identify standards and objectives that are not assessed by the Oklahoma School Testing Program (OSTP) in the original *Oklahoma C³* curriculum.

The student applies a wide range of strategies to describe, interpret, evaluate, and analyze a variety of math problems and contexts.

Standard 1: Algebraic Reasoning: Patterns and Relationships—The student will use algebraic methods to describe patterns, simplify and write algebraic expressions and equations, and solve simple equations in a variety of contexts.

1. Generalize and extend patterns and functions using tables, graphs, and number properties (e.g., number sequences, prime and composite numbers, recursive patterns like the Fibonacci numbers).
2. Write algebraic expressions and simple equations that correspond to a given situation.
3. Use substitution to simplify and evaluate algebraic expressions (e.g., if $x = 5$, evaluate $3 - 5x$).
4. Write and solve one-step equations with one variable using number sense, the properties of operations, and the properties of equality (e.g., $1/3x = 9$).

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to solve a variety of problems. The student will estimate and compute with integers, fractions, and decimals.

1. Number Sense: Convert, compare, and order decimals, fractions, and percents using a variety of methods.
2. Number Operations
 - a. Multiply and divide fractions and mixed numbers to solve problems using a variety of methods.
 - b. Multiply and divide decimals with one- or two-digit multipliers or divisors to solve problems.
 - c. Estimate and find solutions to single and multi-step problems using whole numbers, decimals, fractions, and percents (e.g., $7/8 + 8/9$ is about 2; $3.9 + 5.3$ is about 9).
 - d. Use the basic operations on integers to solve problems.

- e. Build and recognize models of multiples to develop the concept of exponents and simplify numerical expressions with exponents and parentheses using order of operations.

Standard 3: Geometry—The student will use geometric properties and relationships to recognize, describe, and analyze shapes and representations in a variety of contexts.

1. Compare and contrast the basic characteristics of three-dimensional figures (pyramids, prisms, cones, and cylinders).
2. Compare and contrast congruent and similar figures.
3. Identify the characteristics of the rectangular coordinate system and use them to locate points and describe shapes drawn in all four quadrants.

Standard 4: Measurement—The student will use measurements within the metric and customary systems to solve problems in a variety of contexts.

1. Use formulas to find the circumference and area of circles in terms of pi.
2. Convert, add, or subtract measurements within the same system to solve problems (e.g., $9'8'' + 3'6''$, 150 minutes = __ hours and __ minutes, 6 square inches = __ square feet).

Standard 5: Data Analysis—The student will use data analysis, probability, and statistics to interpret data in a variety of contexts.

1. Data Analysis: Organize, construct displays, and interpret data to solve problems (e.g., data from student experiments, tables, diagrams, charts and graphs).
2. Probability: Use the fundamental counting principle on sets with up to five items to determine the number of possible combinations.
3. Central Tendency: Find the measures of central tendency (mean, median, mode, and range) of a set of data (with and without outliers) and understand why a specific measure provides the most useful information in a given context.

Sample Test Items by Standard

Oklahoma C³ Standard:

Standard 1: Algebraic Reasoning: Patterns and Relationships - The student will use algebraic methods to describe patterns, and simplify and write algebraic expressions and equations, and solve simple equations in a variety of contexts.

Oklahoma C³ Objective:

1. Generalize and extend patterns and functions using tables, graphs, and number properties (e.g., number sequences, prime and composite numbers, recursive patterns like the Fibonacci numbers).

Item Specifications:

Emphasis:

- Demonstrate the ability to identify and analyze number patterns from a variety of sources.
- Identify and develop algebraic rules for number patterns.

Stimulus Attributes:

Test items may include illustrations of the following: sequences, tables, graphs, charts, diagrams, counting manipulatives, and data sets.

Format:

- Identify and analyze patterns of numbers from sequences, tables, and other data sources.
- Identify missing numbers in number patterns.
- Use variables to generalize a number pattern algebraically.
- Use variables to develop rules that describe a pattern of numbers algebraically.

Content Limits:

- Limit required operations to addition, subtraction, multiplication, and division.
- Limit patterns to one operation for each step.
- Limit description of rules to one variable.
- Limit to whole numbers

Distractor Domain:

- Common errors
- Incorrect procedures
- Computational errors
- Incorrect use of rules or properties

Modified Oklahoma C³ 1.1 Sample Item:

Depth of Knowledge: 2

Correct Answer: C

Dale made this pattern.

- Each number after 5 is the sum of the two numbers just before it.

3, 5, 8, 13, 21, . . .

What are the next two numbers in the pattern?

- Ⓐ 27, 34
- Ⓑ 29, 37
- Ⓒ 34, 55

Depth of Knowledge: 2

Correct Answer: C

A number pattern uses these rules.

- The first two numbers are 3 and 6.
- To find the next number, double the previous number.

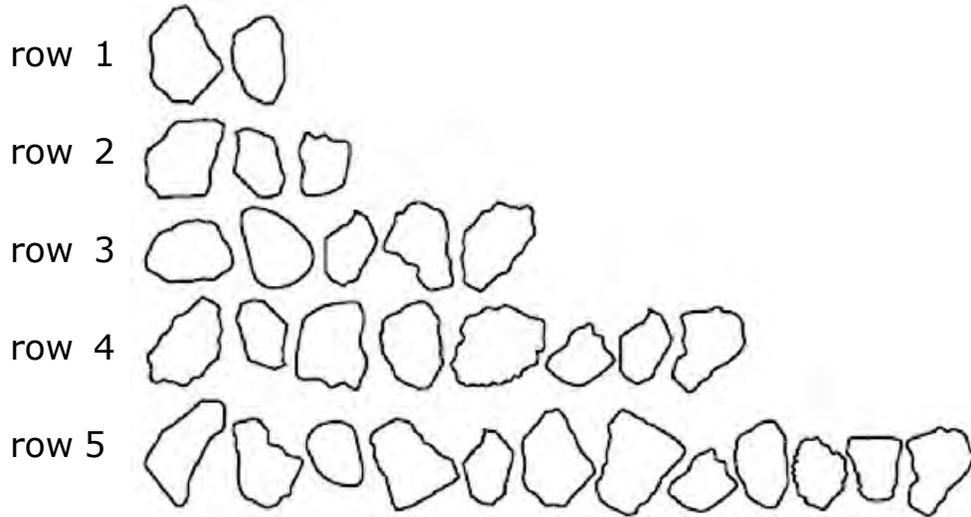
What is the fourth number in the pattern?

- Ⓐ 12
- Ⓑ 15
- Ⓒ 24

Depth of Knowledge: 2

Correct Answer: B

A student used pebbles to make this pattern.



How many pebbles are in row 6?

- (A) 16
- (B) 17
- (C) 20

Oklahoma C³ Standard:

Standard 1: Algebraic Reasoning: Patterns and Relationships—The student will use algebraic methods to describe patterns, simplify and write algebraic expressions and equations, and solve simple equations in a variety of contexts.

Oklahoma C³ Objective:

2. Write algebraic expressions and simple equations that correspond to a given situation.

Item Specifications:Emphasis:

Identify and write the solutions to one-step linear equations.

Stimulus Attributes:

Test items may include illustrations of the following: coordinate graphs, number lines, calculator displays, tables, graphs, charts, data sets, balance scales, pulleys, and other diagrams.

Format:

- Write one-step linear equations and expressions with one variable.
- Identify one-step equations and expressions that model mathematical and real-world situations.

Content Limits:

- Limit equations to one step.
- Limit to one variable in expressions and equations.
- Limit operations to addition, subtraction, multiplication, and division (no exponents).

Distractor Domain:

- Common errors
- Incorrect procedures
- Inappropriate operations with variables

Modified Oklahoma C³ 1.2 Sample Item:

Depth of Knowledge: 1

Correct Answer: A

A number, x , is increased by 3.

Which expression represents this situation?

- (A)** $x + 3$
- (B)** $x - 3$
- (C)** $x \cdot 3$

Depth of Knowledge: 2

Correct Answer: B

Edward sold 72 boxes of popcorn.

- Edward sold 4 times as many boxes as Robert.**

Which equation could be used to find the number of boxes Robert sold, r ?

- (A)** $r + 4 = 72$
- (B)** $r \cdot 4 = 72$
- (C)** $r \div 4 = 72$

Depth of Knowledge: 2

Correct Answer: B

Team A scored 82 points.

- **Team A scored 18 fewer points than Team B.**

Which equation represents the points scored by Team B, b ?

Ⓐ $b + 18 = 82$

Ⓑ $b - 18 = 82$

Ⓒ $b \div 18 = 82$

Oklahoma C³ Standard:

Standard 1: Algebraic Reasoning: Patterns and Relationships—Algebraic Reasoning: Patterns and Relationships - The student will use algebraic methods to describe patterns, simplify and write algebraic expressions and equations, and solve simple equations in a variety of contexts.

Oklahoma C³ Objective:

3. Use substitution to simplify and evaluate algebraic expressions (e.g., if $x = 5$, evaluate $3 - 5x$).

Item Specifications:Emphasis:

- Use substitution to simplify and evaluate algebraic expressions with one step (limits to whole numbers, add, subtract, multiply, and divide).
- Demonstrate the ability to use substitution to find the value of a one-step algebraic expression.

Stimulus Attributes:

Test items may include illustrations of the following: tables, graphs, charts, data sets, equivalency statements, and algebraic expressions.

Format:

- Use variables as unknowns.
- Substitute numerical values for variables in algebraic expressions.
- Use the rules for order of operations with rational numbers to find the values of algebraic expressions.
- Items may include parentheses.

Content Limits:

- Limit operations to addition, subtraction, multiplication, and division (no exponents).
- Limit the number of variables in an expression to one.
- Limit values of the variable to 2-digit whole numbers.

Distractor Domain:

- Common errors
- Incorrect procedures
- Computational errors
- Incorrect use of rules or properties

Modified Oklahoma C³ 1.3 Sample Item:

Depth of Knowledge: 2

Correct Answer: A

$$x - 2$$

If $x = 21$, what is the value of this expression?

- (A)** 19
- (B)** 21
- (C)** 23

Depth of Knowledge: 2

Correct Answer: B

$$2y$$

What is the value of this expression when $y = 5$?

- (A)** 25
- (B)** 10
- (C)** 7

Depth of Knowledge: 3

Correct Answer: C

$$t \cdot 4 \text{ and } t \cdot 8$$

What value of t makes these two expressions equal?

- Ⓐ 4
- Ⓑ 2
- Ⓒ 0

Oklahoma C³ Standard:

Standard 1: Algebraic Reasoning: Patterns and Relationships—Algebraic Reasoning: Patterns and Relationships - The student will use algebraic methods to describe patterns, simplify and write algebraic expressions and equations, and solve simple equations in a variety of contexts.

Oklahoma C³ Objective:

4. Write and solve one-step equations with one variable using number sense, the properties of operations, and the properties of equality (e.g., $1/3x = 9$).

Item Specifications:Emphasis:

Write and find the solutions to one-step linear equations.

Stimulus Attributes:

Test items may include illustrations of the following: coordinate graphs, number lines, calculator displays, tables, charts, data sets, balance scales, pulleys, and other diagrams.

Format:

- Write and solve one-step linear equations with one variable.
- Identify one-step equations that model mathematical and real-world situations.

Content Limits:

- Limit linear equations to 1-step equations.
- Limit equations to those involving only integers.
- Limit multiplication and division by a variable to positive integers.

Distractor Domain:

- Common errors
- Incorrect procedures
- Inappropriate operations with variables

Modified Oklahoma C³ 1.4 Sample Item:

Depth of Knowledge: 2

Correct Answer: A

$$3w = 39$$

Which value of w makes this equation true?

- Ⓐ 13
- Ⓑ 36
- Ⓒ 117

Depth of Knowledge: 2

Correct Answer: B

$$12 + p = 24$$

What is the value of p in this equation?

- Ⓐ 2
- Ⓑ 12
- Ⓒ 36

Depth of Knowledge: 3

Correct Answer: B

Amber's age is 5 years less than Brian's age.

- **Amber is 12 years old.**

Which equation can be used to find Brian's age, b ?

- Ⓐ $12 = 5 - b$
- Ⓑ $12 = b - 5$
- Ⓒ $12 = b + 5$

Oklahoma C³ Standard:

Standard 2: Number Sense and Operations: The student will use numbers and number relationships to solve a variety of problems. The student will estimate and compute with integers, fractions, and decimals.

Oklahoma C³ Objective:

1. Number Sense: Convert, compare, and order decimals, fractions, and percents using a variety of methods.

Item Specifications:Emphasis:

- Order decimals, common fractions, and percents using a variety of methods.
- Demonstrate the ability to identify and order decimals, fractions, and percents.

Stimulus Attributes:

Test items may include illustrations of the following: number lines, 10-by-10 grids, fraction strips, circle graphs, and other diagrams.

Format:

- Convert between and among numerical representations of fractions, decimals, and percents.
- Identify and order up to four decimals, fractions, or percents.
- Items may include fractions with different denominators.

Content Limits:

- Limit numbers to decimals, fractions, and percents.
- Limit fractions to halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths.
- Limit decimals to hundredths place.
- Limit percents to those that are multiples of 5 up to and including 100 percent.

Distractor Domain:

- Incorrect procedures
- Computational errors
- Misunderstanding of mathematical symbols

Modified Oklahoma C³ 2.1 Sample Item:

Depth of Knowledge: 2

Correct Answer: C

Pie-Eating Contest

Contestant Name	Number of Pies Eaten
Ali	$5\frac{1}{2}$
Brett	$5\frac{1}{4}$
Zeke	$5\frac{3}{8}$

Which list shows the number of pies eaten from least to greatest?

- (A) $5\frac{1}{4}$, $5\frac{3}{8}$, $5\frac{1}{2}$
- (B) $5\frac{3}{8}$, $5\frac{1}{4}$, $5\frac{1}{2}$
- (C) $5\frac{1}{4}$, $5\frac{3}{8}$, $5\frac{1}{2}$

Depth of Knowledge: 2

Correct Answer: B

		7					7
					7		
		7					
							7
	7						
				7			
	7						
				7			
			7				

What fractional part of the grid is represented by the squares that contain the number 7?

- Ⓐ $\frac{7}{100}$
- Ⓑ $\frac{1}{10}$
- Ⓒ $\frac{9}{10}$

Depth of Knowledge: 2

Correct Answer: A

Fractional parts of these figures have been shaded.

Figure 1

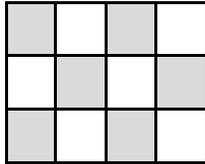


Figure 2

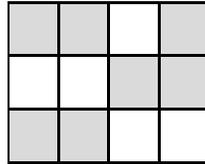
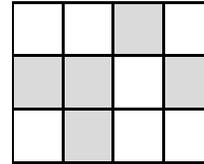


Figure 3



Which figure has shaded fractional parts that represent the decimal 0.5?

- (A) Figure 1
- (B) Figure 2
- (C) Figure 3

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to solve a variety of problems. The student will estimate and compute with integers, fractions, and decimals.

Oklahoma C³ Objective:

2. Number Operations
 - a. Multiply and divide fractions and mixed numbers to solve problems using a variety of methods.

Item Specifications:Emphasis:

- Multiply and divide common fractions to solve problems using a variety of methods.
- Demonstrate the ability to multiply and divide commonly used fractions.

Stimulus Attributes:

Test items may include illustrations of the following: number lines, 10-by-10 grids, counting manipulatives, balances, two-dimensional geometric figures, tables, graphs, charts, maps, scale drawings, bar graphs, picture graphs, data sets, and other diagrams.

Format:

- Use common fractions to solve problems involving multiplication and division in mathematical and real-world contexts.
- Use graphs, grids, and other representations of common fractions to solve problems involving multiplication and division in mathematical and real-world contexts.

Content Limits:

- Limit operations to multiplication and/or division.
- Limit fractions to halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths.
- Items may include fractions with different denominators.
- Limit mathematical and real-world contexts to age-appropriate situations.
- Limit answers on division problems to simplest form with no simplifying required in computation.

Distractor Domain:

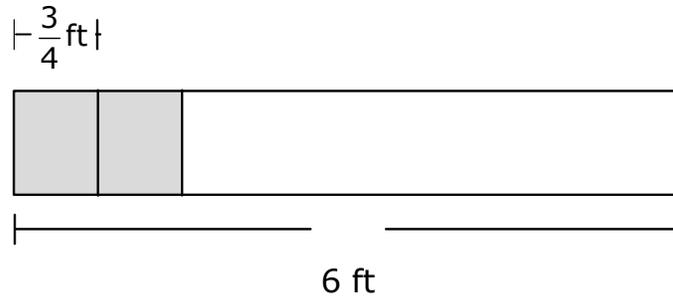
- Common errors
- Incorrect procedures
- Computational errors
- Use of incorrect equivalencies

Modified Oklahoma C³ 2.2a Sample Item:

Depth of Knowledge: 2

Correct Answer: B

Ms. Johnson plans to divide a 6-foot (ft) board into pieces that are $\frac{3}{4}$ ft in length.



How many pieces can she get from this board?

- (A) 9
- (B) 8
- (C) 6

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to solve a variety of problems. The student will estimate and compute with integers, fractions, and decimals.

Oklahoma C³ Objective:

2. Number Operations
 - b. Multiply and divide decimals with one- or two-digit multipliers or divisors to solve problems.

Item Specifications:Emphasis:

Demonstrate an understanding of the structure of rational numbers and apply operations to rational numbers.

Stimulus Attributes:

Test items may include illustrations of the following: number lines, charts, and two- and three-dimensional geometric figures.

Format:

- Multiply and divide decimals in real-life contexts.
- Divide whole numbers by 2-digit divisors with and without remainders expressed as whole numbers or fractions.
- Divide decimals by 2-digit divisors without remainder.

Content Limits:

- Limit mathematical and real-life contexts to age-appropriate situations.
- Limit decimals to hundredths.
- Limit to two operations per problem.

Distractor Domain:

- Computational errors
- Common errors

Modified Oklahoma C³ 2.2b Sample Item:

Depth of Knowledge: 2

Correct Answer: B

The total cost of one poster is \$5.95.

- **Toby buys 8 posters.**

What is the total cost of the 8 posters?

- Ⓐ \$40.20
- Ⓑ \$47.60
- Ⓒ \$52.80

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to solve a variety of problems. The student will estimate and compute with integers, fractions, and decimals.

Oklahoma C³ Objective:

2. Number Operations

- c. Estimate and find solutions to single and multi-step problems using whole numbers, decimals, fractions, and percents (e.g., $7/8 + 8/9$ is about 2; $3.9 + 5.3$ is about 9).

Item Specifications:Emphasis:

- Estimate solutions to single-step problems using whole numbers, decimals, fractions, and percents and assess whether estimates are reasonable.
- Demonstrate the ability to estimate decimals, fractions, and percents to the nearest whole number.

Stimulus Attributes:

Test items may include illustrations of the following: number lines, 10-by-10 grids, counting manipulatives, balances, two-dimensional geometric figures, tables, graphs, charts, maps, scale drawings, bar graphs, picture graphs, data sets, and other diagrams.

Format:

- Use estimation strategies to solve mathematical and real-world problems involving whole numbers, decimal numbers, fractions, and percents.
- Use estimation strategies to determine the soundness of solutions to mathematical and real-world problems involving whole numbers, decimal numbers, fractions, and percents.

Content Limits:

- Limit multi-step problems to three operations.
- Limit numbers to whole numbers, decimal numbers, fractions and percents.
- Limit decimals to the hundredths place.
- Limit fractions to halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths.
- Items may include fractions with different denominators.
- Limit percents to those that are multiples of 5 up to and including 100 percent.

Distractor Domain:

- Common errors
- Incorrect procedures
- Computational errors
- Use of incorrect equivalencies
- Rounding errors

Modified Oklahoma C³ 2.2c Sample Item:

Depth of Knowledge: 2

Correct Answer: A

Sandra bought 3 bags of nails for a project.

- **The weights of the bags, in pounds (lb), are shown below.**

$$\frac{5}{6} \text{ lb, } \frac{1}{4} \text{ lb, } \frac{1}{8} \text{ lb}$$

Which is closest to the total weight of the 3 bags of nails?

- Ⓐ 1 lb
- Ⓑ 2 lb
- Ⓒ 3 lb

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to solve a variety of problems. The student will estimate and compute with integers, fractions, and decimals.

Oklahoma C³ Objective:

2. Number Operations
 - d. Use the basic operations on integers to solve problems.

Item Specifications:Emphasis:

Demonstrate a working knowledge of positive and negative integers to solve problems in mathematical and real-world contexts.

Stimulus Attributes:

Test items may include illustrations of the following: coordinate graphs, number lines, balances, two-dimensional geometric figures; rulers, thermometers, and other measuring instruments; calculator displays, tables, graphs, charts, data sets, and other diagrams.

Format:

- Apply the basic operations on positive and negative integers to solve problems in mathematical, geometric, and real-world contexts.

Content Limits:

- Limit operations to addition, subtraction, multiplication, and division.
- Limit to 2-digit integers.

Distractor Domain:

- Common errors
- Incorrect procedures
- Computational errors
- Incorrect use of rules or properties

Modified Oklahoma C³ 2.2d Sample Item:

Depth of Knowledge: 2

Correct Answer: A

This expression shows a player's score points for a game.

$$80 + (-60) + 15 + (-2)$$

What was the player's final score?

- Ⓐ 33
- Ⓑ 35
- Ⓒ 37

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to solve a variety of problems. The student will estimate and compute with integers, fractions, and decimals.

Oklahoma C³ Objective:

2. Number Operations
 - e. Build and recognize models of multiples to develop the concept of exponents and simplify numerical expressions with exponents and parentheses using order of operations.

Item Specifications:Emphasis:

- Simplify numerical expressions with exponents (limit to the power of 3), and simplify numerical expressions using order of operations (limit to add, subtract, multiply, and divide with only two steps).
- Demonstrate the ability to use exponents.
- Demonstrate the ability to use order of operations to simplify expressions.

Stimulus Attributes:

Test items may include illustrations of the following: tables, graphs, and charts.

Format:

- Convert expressions from exponential to expanded form.
- Convert expressions from exponential to standard form.
- Convert expressions from expanded to exponential form.
- Use the rules for order of operations with whole numbers to find the value of numerical expressions.
- Items may include parentheses.

Content Limits:

- Limit numbers to whole numbers up to 10.
- Limit decimals to 1000ths place.
- Limit fractions to halves, thirds, fourths, fifths, sixths, eighths, tenths, and twelfths.
- Limit exponents to whole numbers no greater than the third power.

Distractor Domain:

- Common errors
- Incorrect procedures
- Computational errors
- Order of operations errors

Modified Oklahoma C³ 2.2e Sample Item:

Depth of Knowledge: 2

Correct Answer: B

$$4^2 - 7$$

What is the value of this expression?

- Ⓐ 16
- Ⓑ 9
- Ⓒ 1

Oklahoma C³ Standard:

Standard 3: Geometry—The student will use geometric properties and relationships to recognize, describe, and analyze shapes and representations in a variety of contexts

Oklahoma C³ Objective:

1. Compare and contrast the basic characteristics of three-dimensional figures (pyramids, prisms, cones, and cylinders).

Item Specifications:Emphasis:

Identify solid figures such as rectangular solids, cones, cylinders, and pyramids.

Stimulus Attributes:

Test items may include illustrations of the following: rectangular solids, prisms, cones, cylinders, and pyramids.

Format:

Identify and describe three-dimensional objects using their defining properties.

Content Limits:

Limit figures to rectangular and triangular prisms, rectangular and triangular pyramids, cones, and cylinders

Distractor Domain:

Common errors

Modified Oklahoma C³ 3.1 Sample Item:

Depth of Knowledge: 1

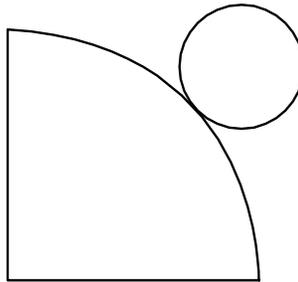
Correct Answer: A

Which of these is a prism?

- Ⓐ cube
- Ⓑ cylinder
- Ⓒ pyramid

Depth of Knowledge: 2

Correct Answer: A

A net for a solid is shown.**Which geometric solid can be formed by folding this net?**

- Ⓐ cone
- Ⓑ cylinder
- Ⓒ prism

Depth of Knowledge: 3

Correct Answer: C

Which 3-dimensional figure has a total of 6 edges?

- Ⓐ cylinder
- Ⓑ rectangular prism
- Ⓒ triangular prism

Oklahoma C³ Standard:

Standard 3: Geometry—The student will use geometric properties and relationships to recognize, describe, and analyze shapes and representations in a variety of contexts.

Oklahoma C³ Objective:

2. Compare and contrast congruent and similar figures.

Item Specifications:Emphasis:

Demonstrate a working knowledge of the difference between congruency and similarity in pairs of geometric figures.

Stimulus Attributes:

Test items may include illustrations of the following: tables, charts, coordinate graphs, two- and three-dimensional geometric figures, protractors and other geometric manipulatives, measuring instruments, maps, and scale drawings.

Format:

- Identify and use the concepts of similarity and congruence in mathematical, geometric, and real-world contexts.
- Figures will be paired for comparison.

Content Limits:

- Limit to visual identification or definition of similarity or congruency.
- Limit two-dimensional geometric figures to triangles, squares, rectangles, parallelograms, pentagons, hexagons, octagons, stars, ovals, and circles.
- Limit three-dimensional geometric figures to rectangular and triangular prisms, pyramids, spheres, cones, and cylinders.
- Nongeometric or irregular geometric figures may be used in real-world contexts.

Distractor Domain:

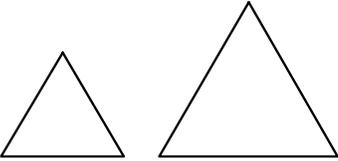
- Common errors
- Incorrect procedures
- Incorrect use of rules or properties
- Confusion between congruency and similarity

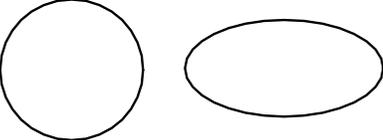
Modified Oklahoma C³ 3.2 Sample Item:

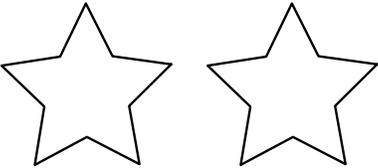
Depth of Knowledge: 1

Correct Answer: A

Which pair of shapes is similar but not congruent?

(A) 

(B) 

(C) 

Depth of Knowledge: 2

Correct Answer: A

Which describes an example of congruent shapes?

(A) The lengths of the sides of 2 triangles are equal.

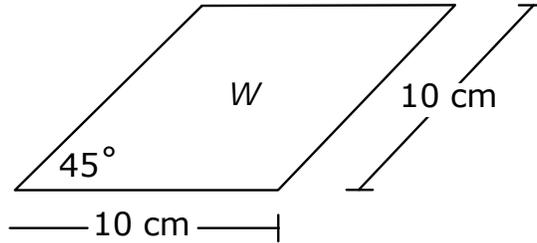
(B) The sides of one square are twice as long as the sides of the second square.

(C) The height of one cone is 4 inches, and the height of another cone is 6 inches.

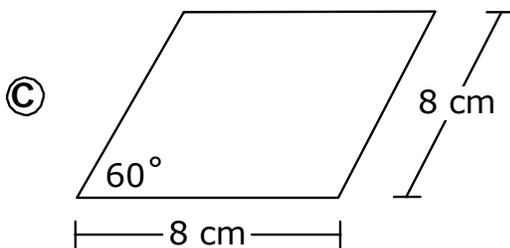
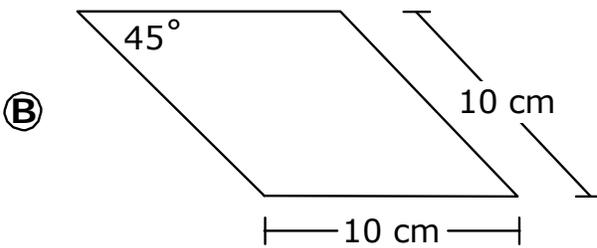
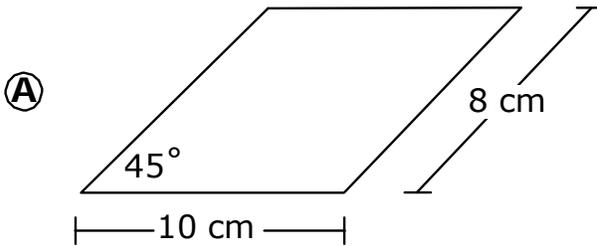
Depth of Knowledge: 3

Correct Answer: B

Figure *W* is shown.



Which figure is congruent to figure *W*?



Oklahoma C³ Standard:

Standard 3: Geometry - The student will use geometric properties and relationships to recognize, describe, and analyze shapes and representations in a variety of contexts.

Oklahoma C³ Objective:

3. Identify the characteristics of the rectangular coordinate system and use them to locate points and describe shapes drawn in all four quadrants.

Item Specifications:Emphasis:

Demonstrate a working knowledge of the location of points on a coordinate plane.

Stimulus Attributes:

Test items may include coordinate graphs.

Format:

- Identify the quadrant in which a given point is located on a coordinate plane.
- Identify the coordinates of an identified point on a coordinate plane or map.
- Identify the point located at identified coordinates on a coordinate plane or map.

Content Limits:

- Limit geometric figures to two dimensions.
- Coordinate graphs must have increments of one marked on the x -axis and the y -axis.
- Limit the range of values on each axis of the graph to -5 to 5.

Distractor Domain:

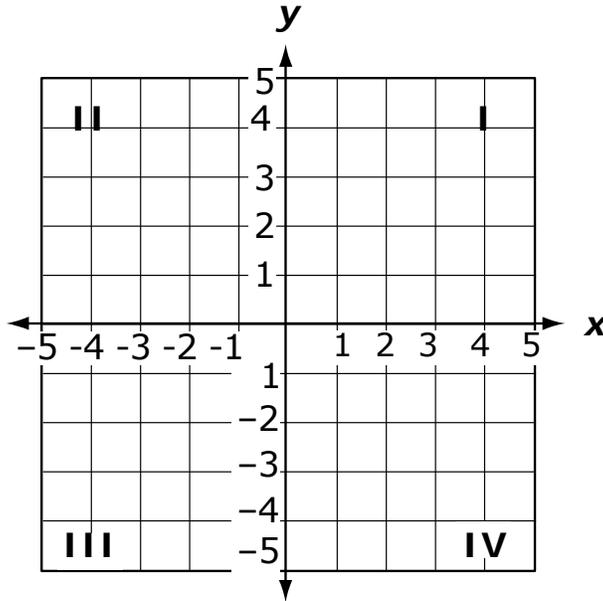
- Common errors
- Incorrect procedures
- Computational errors
- Incorrect use of rules or properties
- Incorrect interpretation of data display

Modified Oklahoma C³ 3.3 Sample Item:

Depth of Knowledge: 1

Correct Answer: B

Point K is located at (-3, 2) on a coordinate plane.



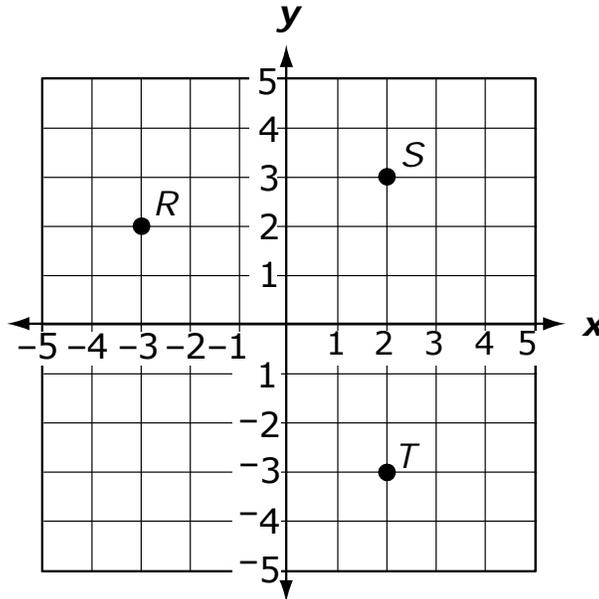
In which quadrant is point K located?

- (A)** quadrant III
- (B)** quadrant II
- (C)** quadrant I

Depth of Knowledge: 1

Correct Answer: C

Points R , S , and T are located on the coordinate grid.

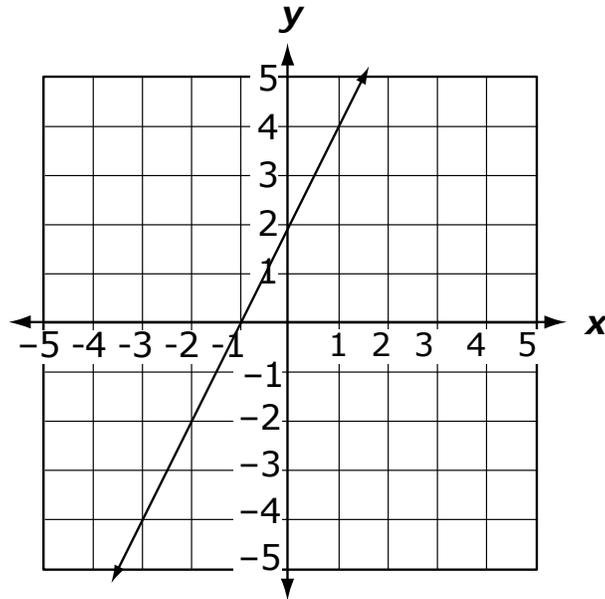


Which point represents the ordered pair $(2, -3)$?

- Ⓐ point R
- Ⓑ point S
- Ⓒ point T

Depth of Knowledge: 2

Correct Answer: A



Which ordered pair represents the point where the line crosses the x -axis?

- Ⓐ (-1, 0)
- Ⓑ (0, -1)
- Ⓒ (0, 2)

Oklahoma C³ Standard:

Standard 4: Measurement—The student will use measurements within the metric and customary systems to solve problems in a variety of contexts.

Oklahoma C³ Objective:

1. Use formulas to find the circumference and area of circles in terms of pi.

Item Specifications:Emphasis:

Demonstrate the ability to solve area and circumference problems involving circles.

Stimulus Attributes:

Test items may include illustrations of the following: coordinate graphs, two-dimensional geometric figures, rulers, combined forms, scale drawings, formulas, and other diagrams.

Format:

- Explore the concepts of area and circumference in mathematical, geometric, and real-world contexts.
- Apply the formulas used to find the area and circumference of circles in a variety of contexts.

Content Limits:

- Limit answers to exact terms of pi.
- Limit radius to whole numbers.
- Provide grids for computing the area of combined forms.

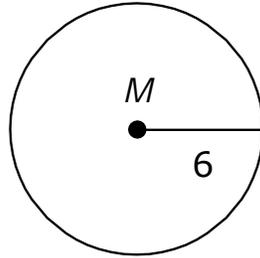
Distractor Domain:

- Common errors
- Incorrect procedures
- Computational errors
- Incorrect use of rules, properties, or formulas
- Use of incorrect formula
- Confusion between area and circumference

Modified Oklahoma C³ 4.1 Sample Item:

Depth of Knowledge: 1

Correct Answer: B

**What is the circumference of circle M ?**

$$C = 2\pi r$$

- (A) 6π
- (B) 12π
- (C) 36π

Depth of Knowledge: 2

Correct Answer: C

Anabeth uses a piece of yarn to outline a circle.

- **The diameter of the circle is 8 inches.**

What is the least amount of yarn Anabeth could use to outline the circle?

$$C = 2\pi r$$

- Ⓐ 64π inches
- Ⓑ 16π inches
- Ⓒ 8π inches

Depth of Knowledge: 3

Correct Answer: B

The area of a circle is 36π square centimeters.

What is the diameter of the circle?

$$A = \pi r^2$$

- Ⓐ 6 centimeters
- Ⓑ 12 centimeters
- Ⓒ 18 centimeters

Oklahoma C³ Standard:

Standard 4: Measurement—The student will use measurements within the metric and customary systems to solve problems in a variety of contexts.

Oklahoma C³ Objective:

2. Convert, add, or subtract measurements within the same system to solve problems (e.g., $9'8'' + 3'6''$, 150 minutes = ____ hours and ____ minutes, 6 square inches = ____ square feet).

Item Specifications:Emphasis:

Demonstrate the ability to convert and compute with measurements in the same measurement system.

Stimulus Attributes:

Test items may include illustrations of the following: number lines, balances, two- and three-dimensional geometric figures, other geometric manipulatives, tables, graphs, charts, data sets, and other diagrams.

Format:

- Compute with and express solutions using customary unit conversions to solve problems in mathematical, geometric, and real-world contexts.
- Compute with and express solutions using metric conversions to solve problems in mathematical, geometric, and real-world contexts.
- Express solutions to problems involving customary or metric units in combined units.
- The direct conversion factor will be provided as needed for the item.
- For perimeter, area, and volume, a graphic with all necessary measurements will be included.

Content Limits:

- Limit to linear measure, weight, mass, time, perimeter, area, capacity, and volume.

Distractor Domain:

- Common errors
- Incorrect procedures
- Computational errors
- Incorrect use of rules or properties
- Use of incorrect equivalencies
- Errors in converting units

Modified Oklahoma C³ 4.2 Sample Item:

Depth of Knowledge: 1

Correct Answer: B

A sidewalk is 6.2 kilometers in length.

$$1,000 \text{ meters} = 1 \text{ kilometer}$$

What is the length of the sidewalk in meters?

- (A)** 620 meters
- (B)** 6,200 meters
- (C)** 62,000 meters

Depth of Knowledge: 2

Correct Answer: C

The top surface of a student's desk is 3 square feet (sq ft).

$$1 \text{ sq ft} = 144 \text{ sq in.}$$

What is 3 sq ft converted to square inches (sq in.)?

- (A)** 36 sq in.
- (B)** 144 sq in.
- (C)** 432 sq in.

Depth of Knowledge: 3

Correct Answer: B

Tucker is carrying two bags.

- **The two bags have a total weight of 16 pounds 5 ounces.**
- **One bag weighs 7 pounds 11 ounces.**

What is the weight of the other bag Tucker is carrying?

1 pound = 16 ounces

- Ⓐ 8 pounds 6 ounces
- Ⓑ 8 pounds 10 ounces
- Ⓒ 9 pounds 6 ounces

Oklahoma C³ Standard:

Standard 5: Data Analysis—The student will use data analysis, probability, and statistics to interpret data in a variety of contexts.

Oklahoma C³ Objective:

1. Data Analysis: Organize, construct displays, and interpret data to solve problems (e.g., data from student experiments, tables, diagrams, charts, and graphs).

Item Specifications:Emphasis:

- Demonstrate the ability to solve problems using data collected, organized, and represented in a variety of formats.
- Identify and interpret graphs of statistical data (e.g., choose the most appropriate representation to avoid distorting information).
- Demonstrate the ability to identify and interpret data in appropriate formats.

Stimulus Attributes:

Test items may include illustrations of the following: line plots, tables, frequency charts, line graphs, bar graphs, pictographs, Venn diagrams, histograms, circle graphs, data sets, and spreadsheets.

Format:

- Solve mathematical and real-world problems based on data presented in a variety of formats.
- Read and interpret data presented in a variety of formats.
- Collect and organize data in appropriate formats.
- Select appropriate representations of data such as tables, bar, circle, or line graphs.
- Translate between representations of data.
- Analyze how representations of data influence inferences and predictions.
- Item may include models or names of graphs in options.

Content Limits:

- Limit graphs to line plots, tables, frequency charts, line graphs, single/double bar graphs, pictographs, Venn diagrams, stem-and-leaf plots, scatter plots, histograms, circle graphs, data sets, and spreadsheets.
- Limit Venn diagrams to two sets.

Distractor Domain:

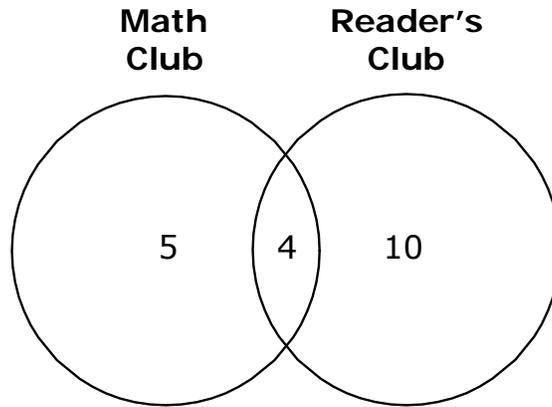
- Common errors
- Incorrect procedures
- Computational errors
- Incorrect or incomplete data display
- Incorrect interpretation of data display

Modified Oklahoma C³ 5.1 Sample Item:

Depth of Knowledge: 1

Correct Answer: A

The Venn Diagram shows the numbers of sixth-grade students in two after-school activities.



What is the number of students who are in both the Math Club and the Reader's Club?

- Ⓐ 4 students
- Ⓑ 9 students
- Ⓒ 19 students

Depth of Knowledge: 2

Correct Answer: B

Dana attends a 90-minute dance class each week.

• Last week, she practiced the following dances during class.

- ballet - 30 minutes**
- tap - 40 minutes**
- jazz - 20 minutes**

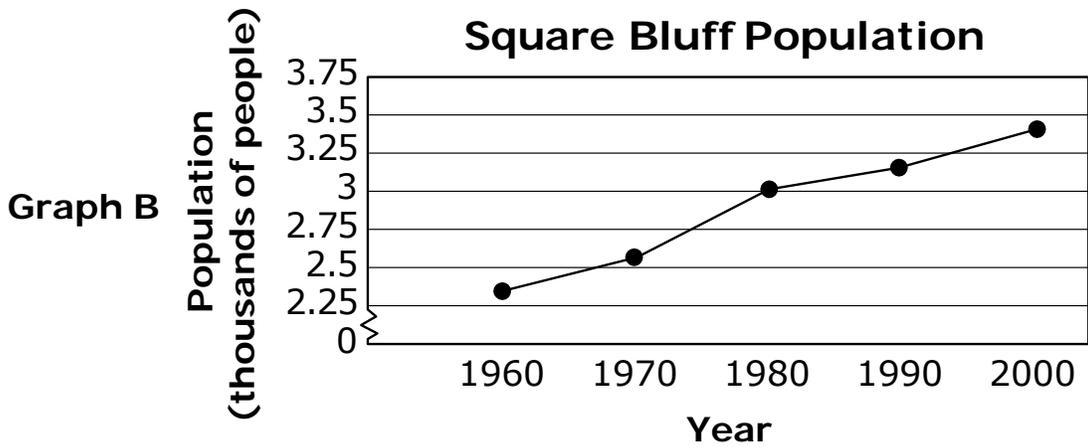
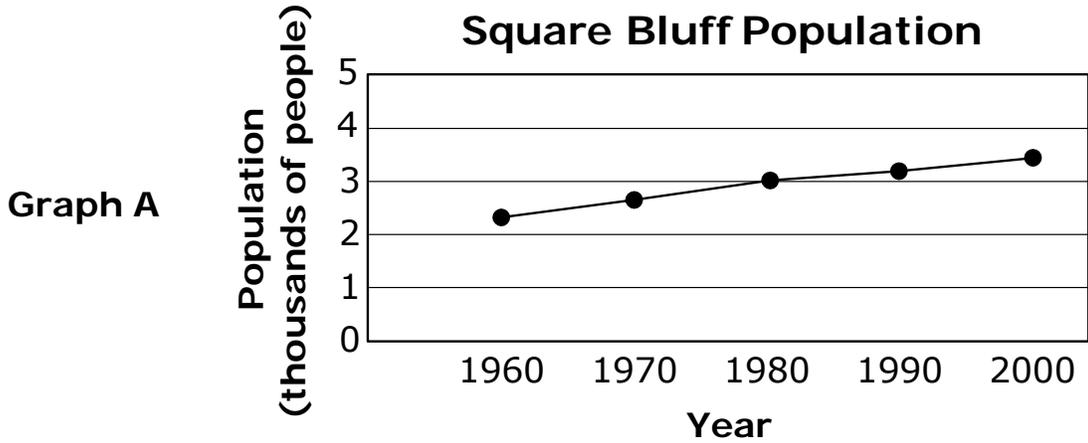
Which is the best way to show how Dana spent her practice time in dance class last week?

- (A)** line plot
- (B)** circle graph
- (C)** frequency chart

Depth of Knowledge: 3

Correct Answer: B

These two graphs were made from the same data.



What part of Graph A makes the changes in population over time appear smaller?

- (A) smaller scale increase on the y-axis
- (B) larger scale increase on the y-axis
- (C) larger scale increase on the x-axis

Oklahoma C³ Standard:

Standard 5: Data Analysis—The student will use data analysis, probability, and statistics to interpret data in a variety of contexts.

Oklahoma C³ Objective:

2. Probability: Use the fundamental counting principle on sets with up to five items to determine the number of possible combinations.

Item Specifications:Emphasis:

- Find all possible combinations and permutations of up to five items.
- Demonstrate the ability to solve for all possible combinations of up to five items.

Stimulus Attributes:

Test items may include illustrations of the following: tables, tree diagrams, lists, and other representations.

Format:

- Determine the number of possible combinations for given sets of items.
- Answers may include lists of items or numerical representations of possible combinations.

Content Limits:

- Limit combinations to no more than five different sets.
- Limit to real-world contexts and age-appropriate situations.

Distractor Domain:

- Common errors
- Incorrect procedures
- Computational errors
- Incorrect use of rules or properties

Modified Oklahoma C³ 5.2 Sample Item:

Depth of Knowledge: 1

Correct Answer: C

This list shows the number of choices available at lunch one day.

- **2 meats**
- **3 sides**

How many lunch combinations of 1 meat and 1 side are possible?

- Ⓐ 2
- Ⓑ 5
- Ⓒ 6

Depth of Knowledge: 2

Correct Answer: C

The table shows Julie's choices for decorating her room.

Paint Color	Window Treatment	Bed Cover
Blue	Blinds	Comforter
Pink	Curtains	Quilt
Yellow		

How many ways can Julie choose 1 paint color, 1 window treatment, and 1 bed cover to decorate her room?

- (A) 3
- (B) 7
- (C) 12

Depth of Knowledge: 3

Correct Answer: A

A school club has 5 boys and 4 girls as members.

- A team of 1 boy and 1 girl will be chosen from the members.

How many different teams of 1 boy and 1 girl can be made from the club members?

- (A) 20 teams
- (B) 9 teams
- (C) 2 teams

Oklahoma C³ Standard:

Standard 5: Data Analysis—The student will use data analysis, probability, and statistics to interpret data in a variety of contexts.

Oklahoma C³ Objective:

3. Central Tendency: Find the measures of central tendency (mean, median, mode, and range) of a set of data (with and without outliers) and understand why a specific measure provides the most useful information in a given context.

Item Specifications:Emphasis:

Demonstrate the ability to find the mean, median, mode, and range for a set of data containing up to 10 elements.

Stimulus Attributes:

- Test items may include illustrations of the following: data sets, charts, tables, bar graphs, pictographs, frequency charts.
- Test items may include any of the following terms: range, spread, mean, or average.

Format:

- Given a set of data, the student will determine mean, median, mode and range.

Content Limits:

- Limit data sets to 10 pieces of data.
- Limit data sets to numerical data.
- Limit bar graph, pictograph, frequency chart, and stem-and-leaf plot to questions relating to mode.
- Emphasize creativity using real-life situations and everyday objects.

Distractor Domain:

- Incorrect procedures
- Misunderstanding of concepts

Modified Oklahoma C³ 5.3 Sample Item:

Depth of Knowledge: 1

Correct Answer: B

24, 13, 39, 31, 46, 64, 13, 46, 13

What is the median for this set of data?

- (A) 13
- (B) 31
- (C) 46

Depth of Knowledge: 2

Correct Answer: B

This table shows the English test scores for 4 students.**English Test Scores**

Student	Score
1	78
2	92
3	95
4	85

What is the mean of these test scores?

- (A) 82.5
- (B) 87.5
- (C) 88.5

Depth of Knowledge: 2

Correct Answer: C

The stem-and-leaf plot shows the ages of a family.

Stem	Leaf
0	3 4 8
1	5 7
2	
3	9
4	9 9
5	5
6	1

Key: $2|4 = 24$

What is the mode age of the family?

- (A) 28
- (B) 30
- (C) 49