LOUISIANA DEPARTMENT OF EDUCATION

Office of Assessments, Accountability, and Analytics

LEAP Assessment Guide for Grade 8 Mathematics

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Purpose

This document is designed to assist Louisiana educators in understanding the LEAP Grade 8 Mathematics assessment.

Introduction

All students in grades 3–8, Algebra I, and Geometry will take the LEAP assessments, which provide

- questions that have been reviewed by Louisiana educators to ensure their alignment to the K-12 Louisiana Student Standards for Mathematics and appropriateness for all Louisiana students;
- measurement of the full range of student performance; and
- information for educators and parents about student readiness in mathematics and whether students are “on track” for college and careers.

Vision for Mathematics Standards and Assessment

Students in Louisiana are ready for college or a career if they are able to meet college and workplace expectations without needing remediation in mathematics skills and concepts. The K-12 Louisiana Student Standards for Mathematics support students to become mathematically proficient by focusing on three components of rigor: conceptual understanding, procedural skill and fluency, and application.

- **Conceptual understanding** refers to understanding mathematical concepts, operations, and relations. It is more than knowing isolated facts and methods. Students should be able to make sense of why a mathematical idea is important and the kinds of contexts in which it is useful. It also allows students to connect prior knowledge to new ideas and concepts.
- **Procedural skill and fluency** is the ability to apply procedures accurately, efficiently, and flexibly. It requires speed and accuracy in calculation while giving students opportunities to practice basic skills. Students' ability to solve more complex application tasks is dependent on procedural skill and fluency.
- **Application** provides a valuable context for learning and the opportunity to solve problems in a relevant and a meaningful way. It is through real-world application that students learn to select an efficient method to find a solution, determine whether the solution(s) makes sense by reasoning, and develop critical thinking skills.

Assessment Design

Supporting Mathematics Instruction

The LEAP mathematics assessments focus on testing the LSSM according to the components of rigor reflected in high-quality mathematics instructional materials that

- require students to demonstrate understanding of mathematical reasoning in mathematical and applied contexts;
- assess accurate, efficient, and flexible application of procedures and algorithms;
- rely on application of procedural skill and fluency to solve complex problems; and
- require students to demonstrate mathematical reasoning and modeling in real-world contexts.

Assessable Content

Each item on the LEAP mathematics assessments is referred to as a task and is identified by one of three types: Type I, Type II, or Type III. All task types are aligned directly to the K-12 Louisiana Student Standards for Mathematics. Type I tasks are further aligned to LEAP mathematics evidence statements for the Major Content and Additional & Supporting reporting categories and allow for the testing of more than one of the student standards on a single task. Type II and III tasks are further aligned to LEAP mathematics evidence statements for the Mathematical Reasoning & Modeling reporting category.

- **Type I tasks** are designed to assess conceptual understanding, fluency, and application, and are aligned to the major, additional, and supporting content for the grade or course.
- **Type II tasks** are designed to assess student reasoning ability of selected content in applied contexts.
- **Type III tasks** are designed to assess student modeling ability of selected content in applied contexts.

LEAP Mathematics Evidence Statements

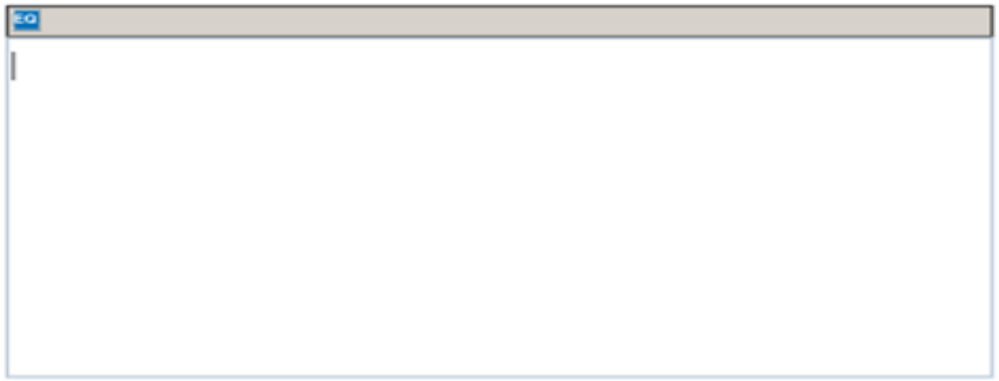
LEAP mathematics evidence statements are labeled to include the task type (I, II, or III) and the grade (3, 4, 5, 6, 7, or 8) or course (A1 or GM). LEAP evidence statements for grade 8 are labeled "LEAP.II.8.#" for Type II tasks and "LEAP.III.8.#" for Type III tasks. See the table in Appendix A for a listing of assessable content of the LSSM and LEAP mathematics evidence statements.

Item Types

All of the item types in the following list will appear on the tests.

- Multiple Choice (MC) – This item type asks students to choose one correct answer from four and may appear as a one-part question, as part of a two-part question, or as a part of a CR item. The MC items are worth one point.
- Multiple Select (MS) – This item type asks students to choose **more than one** correct answer and may appear as a one-part question, as part of a two-part question, or as a part of a CR item. Whenever this item type is used, the question always identifies in boldface print that more than one answer is required. The question **may or may not** specify the exact number of correct answers. The MS items are worth one point. Students must choose **all correct answers and no incorrect** answer can be chosen.
- Short Answer (SA) – This item type asks students to key numeric answers into an entry box using the keyboard and may appear as a one-part question, as part of a two-part question, or as a part of a CR item. The SA items are worth one point. Unless specified in the question, a student will earn credit for an answer that is mathematically equivalent to the correct numerical answer. Answers to SA items can be positive or negative and must be entered in integer or decimal form.
- Keypad Input (KI) – This item type asks students to key numeric or algebraic answers in the form of fractions, mixed numbers, expressions, equations, or inequalities. This item type may appear as a one-part question, as part of a two-part question, or as a part of a constructed-response item. The KI items are worth one point. Unless specified in the question, a student will earn credit for an answer that is equivalent to the correct numeric or algebraic response.
- Technology Enhanced (TE) – This item type uses technology to capture student responses and may appear as a one-part question, as part of a two-part question, or as a part of a CR item. The TE items are worth one point. Students must meet the requirements of the question exactly to receive credit. The Online Tools Training (OTT) allows students to practice answering the different types of TE questions. For a summary of the different styles of technology-enhanced items refer to the LEAP Technology-Enhanced Item Types document.

- Constructed Response (CR) – This item type can be single- or multi-part. CR items ask students to create a written explanation or justification, model a process, and/or compute an answer to earn a series of points. A student may receive partial or full credit on CR items, but maximum point values will vary by task. Maximum values for CR items are 3, 4, or 6 points. When responding to a CR item, students will type their responses into a response box, like the one shown.



Response Box

The response box allows students to use the keyboard to type in their response or work. There is a limit to the number of characters that can be typed in the response box; however, it is set well beyond what a student might produce based on grade-specific expectations of the item. The toolbar at the top of the response box has the Equation Builder tool that allows the students to create a response with commonly used grade-specific mathematical symbols.

Equation Builder

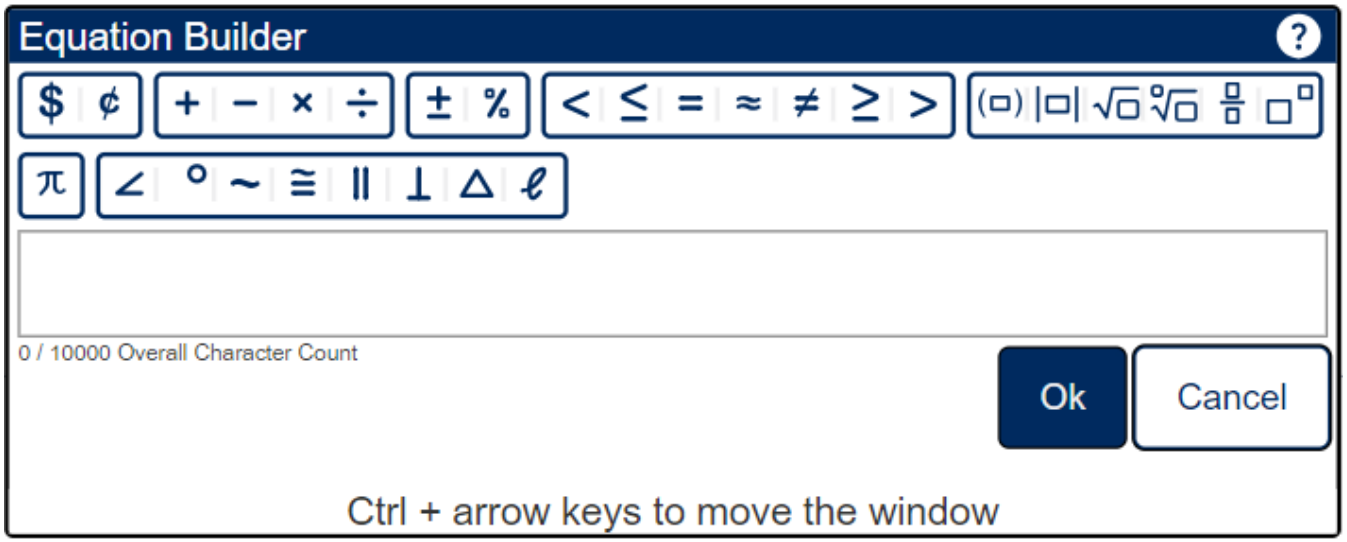
Students are **not** required to use the equation builder for any symbols that are also available on the keyboard. For example, students may use a slash, forward / or back \, to represent a fraction, a carat ^ to represent exponents, or a pair of pipes || to represent absolute value.

Additionally, symbols like degree ° and perpendicular ⊥ are not available on the keyboard, but students may type the words “degrees” and “perpendicular” as necessary. Other symbols, such as square root √ and pi π, are not available on the keyboard, but may be required in symbol form for expressions and equations.

The Equation Builder does not include all symbols/characters students might need to type into the response box. Students should know how to type a negative sign - and a colon : using the keyboard. The × button in the Equation Builder is a multiplication symbol and should not be used as a variable x, but students are not penalized if they do.

Using the Equation Builder

- To enter text, click the pointer in the **Response Box** and type text using the keyboard.
- Click on the **Equation Builder button** to open the tool and enter any mathematical symbols, characters, or format.
- When finished, click on the **OK** button in the lower-right corner of the Equation Builder tool – the equation will be entered into the response box.
- To cancel what you have entered, click on the **Cancel** button in the lower-right corner of the Equation Builder tool and you will be returned to the response box.
- To edit an existing equation, double-click on the equation in the Response Box. This will re-open the Equation Builder.



Test Design

The LEAP mathematics assessment in grade 8 contains a total of 36 tasks for 55 points. The table below shows the breakdown of the number of tasks and point values by Reporting Category and Session. The LEAP mathematics test is **timed**. No additional time is permitted, except for students who have a documented extended time accommodation (e.g., an IEP).

Reporting Category	Session 1		Session 2		Session 3		Total	
	Tasks	Points	Tasks	Points	Tasks	Points	Tasks	Points
A - Major Content	12-17	17	2-5	5	3-5	5	22-27	27
B - Additional & Supporting Content	2-4	4	2-3	3	1-2	2	4-9	9
C - Mathematical Reasoning & Modeling	0	0	2	9	3	10	5	19
Total Operational	14-19	21	7-10	17	8-10	17	36	55
Total Field-Test	1-2	N/A	1-2	N/A	1	N/A	3-5	N/A
Session Time	60 minutes		75 minutes		75 minutes		210 minutes	

Note: The test contains field-test tasks, which **do not** count toward the test score; they provide information that will be used to develop future test forms.

The following table includes information on the total tasks, total points, and percentage of assessment points by task-type point-values.

Task Types	Point Values	Total Tasks	Total Points		Percentage of Points	
Type I	1-point	26	26	36	47.3%	66%
	2-point	5	10		18.2%	
Type II	3-point	2	6	10	11%	18%
	4-point	1	4		7%	
Type III	3-point	1	3	9	5.5%	16%
	6-point	1	6		11%	
Total		36	55		100%	

Reporting Categories

Each of the three task types is aligned to one of three reporting categories: Major Content, Additional & Supporting Content, or Mathematical Reasoning & Modeling. Each task type is designed to align with at least one of the Louisiana Student Standards for Mathematical Practice (MP), found on pages 6-8 in the K-12 Louisiana Student Standards for Mathematics.

Task Type	Description	Reporting Category	Mathematical Practice
Type I	conceptual understanding, fluency, application	**A - Major Content:** solve problems involving the major content for grade 8 **B - Additional & Supporting Content:** solve problems involving the additional and supporting content for grade 8	may align with any or all practices
Type II	written argument/justification, critique of reasoning/precision in mathematical statements	**C - Mathematical Reasoning & Modeling:** express mathematical reasoning by constructing mathematical arguments and critiques; solve real-world problems engaging particularly in the modeling practice	primarily MP.3, MP.4, and MP.6, but may also involve any of the other practices
Type III	modeling or application in a real-world context		

The Major Content reporting category is divided, based on Achievement Level Descriptors, into the following subcategories.

Subcategory	LSSM and LEAP Mathematics Evidence Statements	Description
Radicals, Integer Exponents, and Scientific Notation	8 EE.A.1, 8 EE.A.2, 8.EE.A.3, 8.EE.A.4	Students represent, evaluate, and solve expressions, equations, and mathematical problems that include or require integer exponents, square roots, cube roots, and quantities expressed in scientific notation.
Proportional Relationships, Linear Equations, and Functions	8.EE.B.5, 8.EE.B.6, 8.F.A.1, 8.F.A.2, 8.F.A.3	Students understand and apply the concept of proportional relationships and functions to analyze, graph, compare, and solve real-world mathematical problems and relationships.
Solving Linear Equations/Systems of Linear Equations	8.EE.C.7b, 8.EE.C.8	Students solve linear equations in one variable with rational number coefficients. Students analyze and solve pairs of simultaneous linear equations graphically, algebraically, and by inspection.
Congruence and Similarity/Pythagorean Theorem	8.G.A.1, 8.G.A.2, 8.G.A.3, 8.G.A.4, 8.G.B.7, 8.G.B.8	Students perform and describe the effects of transformations on two-dimensional figures, with and without coordinates. Students apply the Pythagorean Theorem to solve mathematical and real-world problems.

These reporting categories will provide parents and educators valuable information about

- overall student performance, including readiness to continue further studies in mathematics;
- student performance broken down by mathematics content and practices, which may help identify when students need additional support or more challenging work;
- student performance in Major Content broken down by content subcategories, which may help teachers and schools hone in on specific content for professional development; and
- how well schools and schools systems are helping students achieve higher expectations.

Achievement-Level Definitions

Achievement-level definitions briefly describe the expectations for student performance at each of Louisiana's five achievement levels:

- **Advanced:** Students performing at this level have **exceeded** college and career readiness expectations and are well prepared for the next level of study in this content area.
- **Mastery:** Students performing at this level have **met** college and career readiness expectations and are prepared for the next level of study in this content area.
- **Basic:** Students performing at this level have **nearly met** college and career readiness expectations and may need additional support to be fully prepared for the next level of study in this content area.
- **Approaching Basic:** Students performing at this level have **partially met** college and career readiness expectations and will need much support to be prepared for the next level of study in this content area.
- **Unsatisfactory:** Students performing at this level have **not yet met** the college and career readiness expectations and will need extensive support to be prepared for the next level of study in this content area.

Achievement Level Descriptors

Achievement Level Descriptors (ALDs) indicate what a typical student at each level should be able to demonstrate based on his or her command of grade-level standards. ALDs are written for the four assessment reporting categories. Access the ALDs in the Assessment Resources Webpage for a breakdown of the knowledge, skills, and practices associated with each achievement level.

Test Administration

Administration Information

The testing window opens April 1, 2027, and runs through May 12, 2027 for all computer-based tests. The school or district test coordinator will communicate each school's testing schedule. For updates to the testing schedule, refer to the 2026-2027 Louisiana Assessment Calendar. All LEAP assessments are **timed**. No additional time is permitted, except for students who have a documented extended time accommodation (e.g., an IEP).

Scheduling Requirements for Computer-Based Testing

Computer-based testing allows school systems some flexibility in scheduling. However, to reduce incidences of testing irregularities, school systems **must** adhere to the following scheduling and administration practices:

- Testing students in the same grade level across the school at or very close to the same time
- Completing makeup testing for students immediately upon their return
- Limiting student interaction during breaks between test sessions
- Isolating students who have not completed testing for the day (e.g., students with extended time accommodation)
- Preventing interaction between groups of students taking the same tests at different times within a testing day
- Requiring the completion of a session once it is opened (i.e., limiting the reopening of test sessions)
- Taking the sessions within a content area in the correct order (e.g., Math Session 1 taken before Math Session 2)

The following is also recommended:

- Limiting sessions to no more than three in one day for a student

For more information about scheduling and administration policies, refer to the Online Assessment Scheduling Guidance, found in the LDOE Assessment Resources Webpage.

Spanish Mathematics Guidelines

Spanish-language versions of the LEAP mathematics assessments are available as an accommodation for Spanish-speaking English learners. The following guidelines should be used when assigning a student to a Spanish-language mathematics assessment. The student should meet at least one of the following criteria:

- student whose primary language is Spanish and who receives instruction in Spanish
- student who is a recently arrived EL and had prior instruction in mathematics in Spanish
- student who is enrolled in a dual-language immersion program that includes mathematics taught in Spanish

Consideration of the following is strongly urged when deciding which version of the mathematics assessment form (i.e., English-language or Spanish-language version) is best for a Spanish-speaking student.

- The language in which a student receives instruction affects their performance.
- A Spanish-speaking student who is not receiving instruction in Spanish may not have knowledge of math-specific terms translated to Spanish.
- A Spanish-speaking student may not have the literacy skills required to read in Spanish (speaking Spanish is not the same as reading Spanish).

If a teacher is unsure whether the Spanish-language version is appropriate for a specific student, it is recommended that the student take one session of the LEAP mathematics practice test in English and one session in Spanish in order to determine the language in which the student is most comfortable.

Testing Materials

The chart that follows summarizes the tools and resources for the grade 8 mathematics assessment.

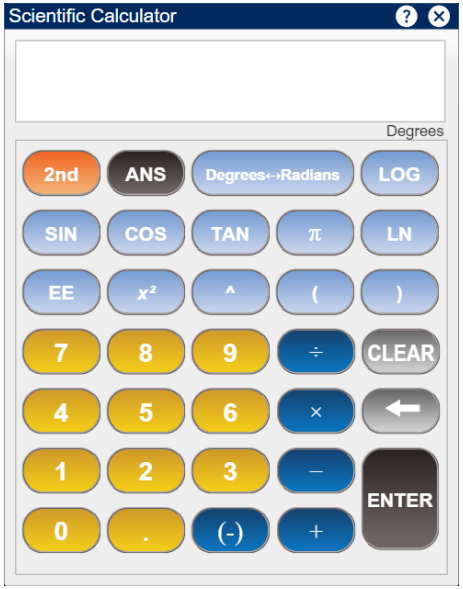
Required Tools	Provided	Session 1	Sessions 2 & 3	Guidelines
scratch paper (lined, graph, unlined), two pencils	by Test Administrator	YES	YES	• Reference sheets may be printed from the DRC Insight Portal (eDirect) • Tools provided by Test Administrator must not be written on • See Calculator Policy for calculator specifications
$\frac{1}{8}$ –inch ruler and centimeter ruler	Online	YES	YES	
Calculator	online and/or by Test Administrator	NO	YES	
Grade 8 Mathematics Reference Sheet	online and/or by Test Administrator	YES	YES	
Allowable Tools	**Provided**	**Session 1**	**Sessions 2 & 3**	**Guidelines**
protractor, tracing paper, reflection tools, straight edge, and compass	by Test Administrator	YES	YES	• Schools may permit students to bring their own allowable tools; test administrators must ensure tools are appropriate for testing (e.g., tools do not have any writing on them)

Calculator Policy

The LEAP mathematics assessment allows a scientific calculator in grade 8 during Sessions 2 and 3. Calculators are **not** allowed during Session 1 of the test. For students with the approved accommodation, a hand-held scientific calculator is allowed during all test sessions. The following table includes calculator information by session for both general testers and testers with approved accommodations for calculator use.

Calculator Policy	Session 1	Sessions 2 & 3
General Testers	Not allowed	Scientific calculator available online, may also have hand-held
Testers with approved accommodation for calculator use	Scientific calculator available online, may also have handheld	
Additional information for testers with approved accommodations for calculator use: • If a student needs an adaptive calculator (e.g., large key, talking), the student may bring his or her own or the school may provide one, as long as it is specified in his or her approved IEP or 504 Plan. • Students may also use a hand-held four-function calculator in addition to the scientific calculator, provided the accommodation is documented. The four-function calculator may have square root, percent, memory, and +/- keys.		

Additionally, schools must adhere to the following guidance regarding calculators.



- Scientific calculators **must not** have graphing capabilities
- Calculators with the following features are **not** permitted:
  - Computer Algebra System (CAS) features
  - “QWERTY” keyboards
  - paper tape
  - talk or make noise, unless specified in IEP/IAP
  - tablet, laptop (or PDA), phone-based, or wristwatch
- Students are **not** allowed to share calculators within a testing session.
- Test administrators must confirm that memory on all calculators has been cleared before and after the testing sessions.
- The student should use the calculator they have used regularly throughout the school year in their classroom and are most familiar with, provided their regular-use calculator is not outside the boundaries of what is allowed.
- If schools or school systems permit students to bring their own hand-held calculators, test administrators must confirm that the calculators meet all the requirements as defined above.

Reference Sheet

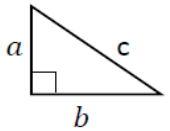
Students in grade 8 will be provided a reference sheet with the information shown. The Grade 8 Mathematics Reference Sheet may be printed from the DRC Insight Portal (eDirect) or found in the Assessment Guidance webpage on page 4 of LEAP Grades 5-HS Mathematics Reference Sheets.

- 1 inch = 2.54 cm
- 1 m = 39.37 inches
- 1 mile = 5280 feet
- 1 mile = 1760 yards
- 1 mile = 1.609 km
- 1 km = 0.62 mile

- 1 pound = 16 ounces
- 1 pound = 0.454 kg
- 1 kg = 2.2 pounds
- 1 ton = 2000 pounds

- 1 cup = 8 fluid ounces
- 1 pint = 2 cups
- 1 quart = 2 pints
- 1 gallon = 4 quarts
- 1 gallon = 3.785 L
- 1 L = 0.264 gallon
- 1 L = 1000 cubic cm

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$ $C = \pi d \text{ or } C = 2\pi r$
General Prisms	$V = Bh$

Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pythagorean Theorem	 $a^2 + b^2 = c^2$

Students in grade 8 will be required to know relative sizes of measurement units within one system of units. Therefore, the following requisite knowledge is necessary for the grade 8 assessments and is not provided on the reference sheet.

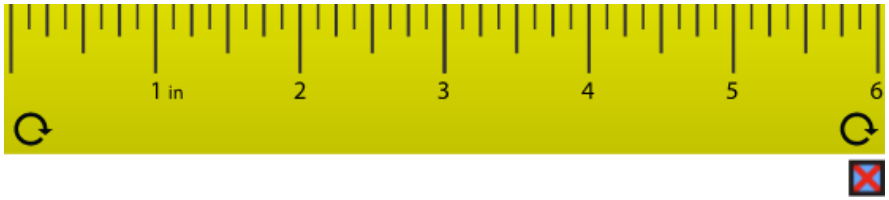
Requisite Knowledge

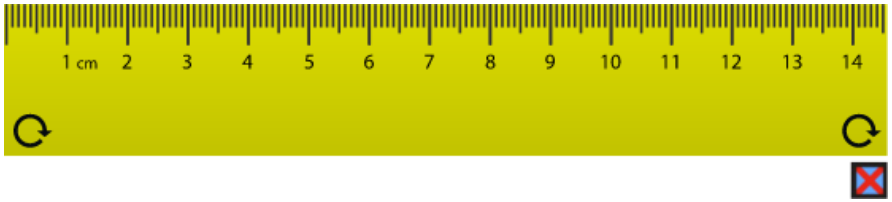
- 1 m = 100 cm
- 1 m = 1000 mm
- 1 km = 1000 m
- 1 kg = 1000 g
- 1 g = 1000 mg
- 1 L = 1000 mL
- 1 foot = 12 inches
- 1 yard = 3 feet
- 1 day = 24 hours
- 1 minute = 60 seconds
- 1 hour = 60 minutes

- Area and Perimeter formulas for rectangles

Measurement Tools

Grade 8 rulers provided on the LEAP CBT (not actual size):





Testing Platform

Students taking the computer-based tests will enter their answers into the online testing system. The way each answer is entered depends on the task type. The computer-based tests include the following online tools, which allow a student to select answer choices, “mark” tasks, eliminate answer options, highlight specific information, take notes, enlarge the task, guide the reading of a task line by line, use a ruler, apply a mask to cover a part of their screen, see the mathematics reference sheet, use a calculator, and use an equation builder for entering special characters. A help tool is also featured to assist students as they use the online system.

- Pointer

- Cross-off

- Highlighter

- Sticky note

- Magnifier

- Line guide

- Measurement Tools

- Masking

- Reference Sheet

- Calculator

- Help

- Equation Builder

Note: The images to the left represent both ways students will see the online tools. All tools, except the equation builder, will have a white background. When a student hovers the curser over the icon, it will change the background to blue as shown.

All students taking the computer-based test should work through the Online Tools Training, using the online tools so students are well prepared to navigate the online testing system.

Sample Test Items

This section includes six Type I tasks, one Type II task, and one Type III task as they would appear on a test. The answer keys for each Type I task and scoring rubrics for each constructed-response task are located in Appendix B. Look for these tasks in the OTT.

Multiple-Choice Task

Which equation has the same solution as $4 - 2(x - 5) = x - 19$?

(a) $2(x + 5) = -8$

(b) $3(x - 3) = 9$

(c) $x + 2 = 2x - 3$

(d) $3x - 4 = 2x + 7$

Multiple-Select Task

Which numbers are rational?

Select **each** number that is correct.

(a) $58.2\overline{47}$

(b) $\sqrt{3}$

(c) $\frac{7}{195}$

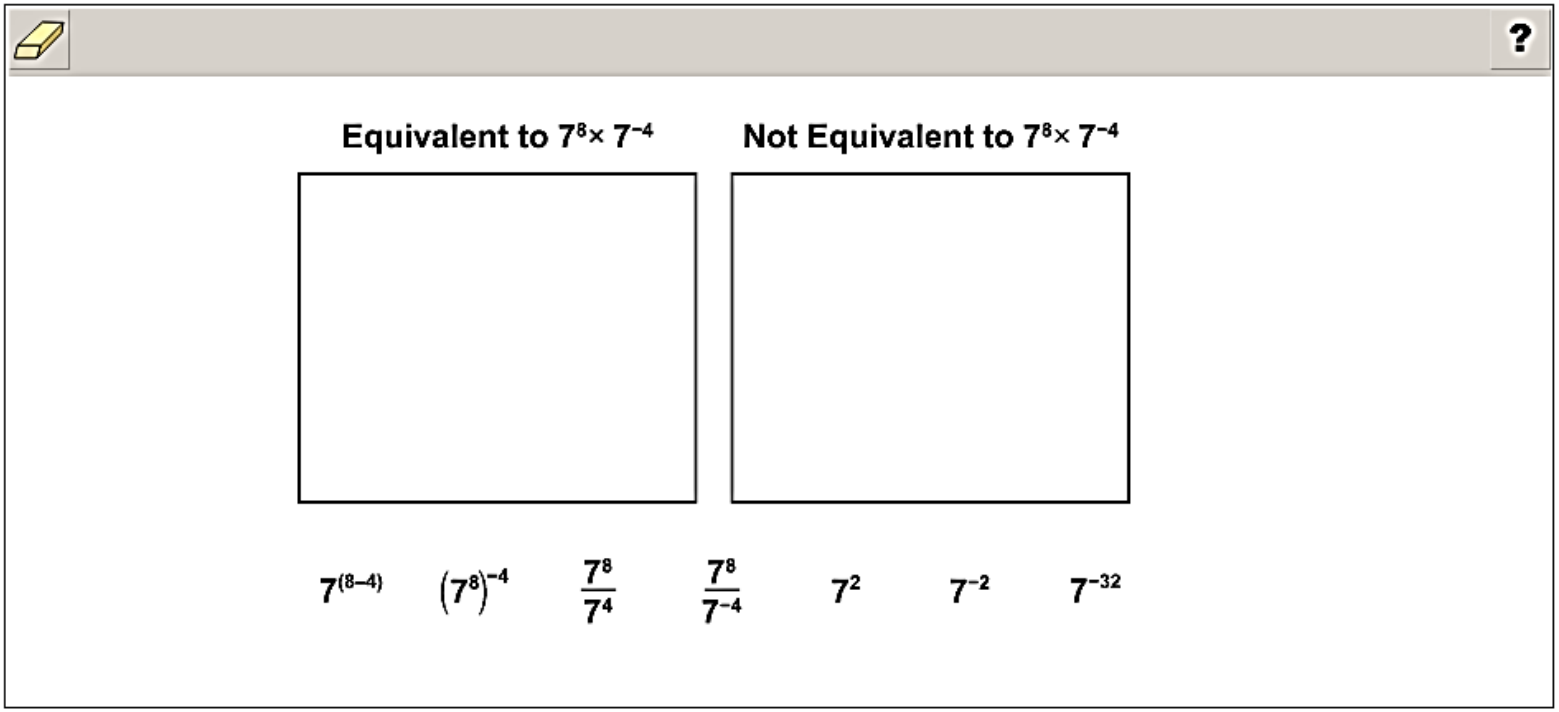
(d) 6π

(e) $\frac{8}{5}$

TE: Drag-and-Drop Task

Seven expressions are shown. Indicate whether each expression is equivalent to or not equivalent to $7^8 \times 7^{-4}$.

Drag and drop each expression into the correct box.



TE: Dropdown Menu/Short Answer Type I Task

Part A

Paul wrote the equation $t = 2m + 40$ to represent the temperature, t, in degrees Celsius, after a substance had been heated for m minutes.

Describe the relationship between the temperature of the substance and the time the substance has been heated.

Select from the drop-down menus to correctly complete each statement.

The temperature was initially [ ] degree(s) Celsius. The temperature increased by [ ] degree(s) Celsius every [ ] minute(s) it was heated.

1	1	1
2	2	2
10	10	10
40	40	40

Part B

Based on Paul's equation, how many minutes does the substance have to be heated to reach a temperature of 100 degrees Celsius?

Enter your answer in the box.

[ ] minutes

TE: Match Interaction Task

Four systems of equations are shown in the table. Indicate whether each system of equations has no solution, one solution, or infinitely many solutions.

Select a cell in each row of the table.

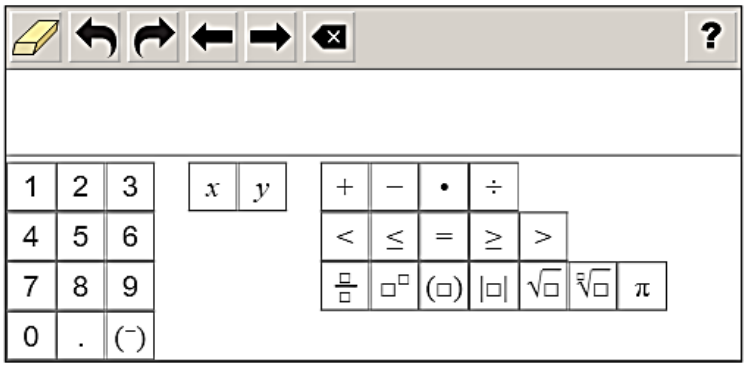
	No Solution	One Solution	Infinitely Many Solutions
$2x + 3y = -6$ $4x + 6y = -12$	☐	☐	☐
$x = 1$ $y = 2$	☐	☐	☐
$x - 2y = 4$ $x - 2y = 5$	☐	☐	☐
$y = 5x + 20$ $3y = 15x + 60$	☐	☐	☐

Keypad Input Task

Damien has a newspaper delivery route. Every morning it takes him 12 minutes to organize his newspapers before he starts his delivery. Then, he delivers 3 newspapers every 2 minutes.

Write a function to represent the number of minutes, *y*, it takes Damien each day to deliver *x* newspapers, including the time it takes him to get organized.

Enter your answer in the box.



Type II Constructed-Response Task

Part A

Cary claimed that the expression $-5 + m$ is negative. Determine whether Cary's claim is always true, sometimes true, or never true. Provide evidence to support your conclusion.

Enter your answer and your explanation in the space provided.

EQ

Part B

Phillip claimed that the expression $-p + 5 + p$ is positive for any value of p. Determine whether Phillip's statement is always true, sometimes true, or never true. Provide evidence to support your conclusion.

Enter your answer and your explanation in the space provided.

EQ

Type III Constructed-Response Task

The owner of a computer store is offering a discount on a computer sold in the store.

Computer Sale!

Original Price: $598.00
25% off original price

8% tax applied after discount

Part A

The owner offers a payment plan where the total cost of the computer is paid in 6 equal monthly payments.

- Determine the amount of each monthly payment.
- Show your work or explain your answer.

Enter the monthly payment and your work or explanation in the box provided.

EQ

The owner of a computer store is offering a discount on a computer sold in the store.

Computer Sale!

Original Price: $598.00
25% off original price

8% tax applied after discount

Part B

A different computer is advertised as 40% off of the original price. After the discount, the tax is $44.64.

- Determine the total price of this computer after the discount and tax are applied.
- Show your work or explain your answer.
- Determine the original price of this computer.
- Show your work or explain your answer.

Enter your answers and your work or explanations in the box provided.

EQ

Resources

Assessment Guidance Webpage

- LEAP Equation Builder for Grades 6-8: provides teachers with information on using the equation builder; Spanish
- LEAP Grades 5-HS Mathematics Reference Sheets: includes all the mathematics references sheets provided for LEAP testing
- Assessment Development Educator Review Committees: describes the item development process and associated committees, includes information on applying for participation

Practice Test Webpage

- LEAP Grade 8 CBT Practice Test and Answer Key: includes answer keys, scoring rubrics, and alignment information for each task on the practice test; Spanish
- LEAP Mathematics Practice Test Guidance: provides guidance on using the mathematics practice tests to support instructional goals
- Practice Test Quick Start Guide: provides information regarding administration and scoring of the online practice tests

Assessment Resources Webpage

- LEAP Accessibility and Accommodations Manual: provides information about accessibility features and accommodations
- LEAP Technology Enhanced Item Types: provides a summary of technology enhanced items
- Achievement Level Descriptors: descriptions of the knowledge, skills, and cognitive processes that students should demonstrate with relative consistency and accuracy at each level of achievement
- LEAP 360: non-summative assessment system; includes diagnostic and interim assessments

DRC INSIGHT Portal (eDIRECT):

- Includes access to tutorials, manuals, and user guides

INSIGHT ^{TM}

- Online Tools Training: allows students to become familiar with the tools available in the online testing platform; also available through this link using the Chrome browser
- LEAP Grade 8 Practice Test: helps prepare students for the tests

K-12 Louisiana Math Webpage

- K-12 Louisiana Student Standards for Mathematics: explains the development of and lists the math content standards for Louisiana students
- Grade 8 Mathematics - Teachers Companion Document 2.0: contains descriptions of each standard to answer questions about the standard's meaning and how it applies to student knowledge and performance
- Grade 8 Learning Acceleration Guidance: reference guide for teachers to help them more quickly identify the specific remedial standards necessary for every standard, includes information on content emphasis
- K-12 LSSM Alignment to Rigor: provides explanations and a standards-based alignment to assist teachers in providing a rigorous education
- Math Formative Assessment Items: instructional resources in grade-level documents that teachers can download and incorporate into their daily instruction. (Password to access the document is Educate2020)

Contact the LDOE

- assessment@la.gov for assessment questions
- classroomsupporttoolbox@la.gov for curriculum and instruction questions
- AskLDOE for general questions
- ldoecommunications@la.gov to subscribe to newsletters; include the newsletter(s) you want to subscribe to in your email

Newsroom: archived copies of newsletters including LDOE Weekly School System Newsletters and Teacher Leader Newsletters

Appendix A

Assessable Content for the Major Content Reporting Category (Type I)

LSSM Content Standards	
■ 8.EE.A	■ Expressions and equations work with radicals and integer exponents.
8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
8.EE.A.2	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
8.EE.A.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 times 10^8 and the population of the world as 7 times 10^9, and determine that the world population is more than 20 times larger.
8.EE.A.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
■ 8.EE.B	■ Understand the connections between proportional relationships, lines, and linear equations.
8.EE.B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
8.EE.B.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.
■ 8.EE.C	■ Analyze and solve linear equations and pairs of simultaneous linear equations.
8.EE.C.7	Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
8.EE.C.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.

	c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.
■ 8.F.A	■ Define, evaluate, and compare functions.
8.F.A.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in this grade level.)
8.F.A.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
8.F.A.3	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; categorize functions as linear or nonlinear when given equations, graphs, or tables. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
■ 8.G.A	■ Understand congruence and similarity using physical models, transparencies, or geometry software.
8.G.A.1	Verify experimentally the properties of rotations, reflections, and translations: a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines.
8.G.A.2	Explain that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. (Rotations are only about the origin and reflections are only over the y-axis and x-axis in Grade 8.)
8.G.A.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the y-axis and x-axis in Grade 8.)
8.G.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the y-axis and x-axis in Grade 8.)
■ 8.G.B	■ Understand and apply the Pythagorean Theorem.
8.G.B.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8.G.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Assessable Content for the Additional & Supporting Content Reporting Category (Type I)

LSSM Content Standards	
■ 8.NS.A	■ Know that there are numbers that are not rational, and approximate them by rational numbers.
8.NS.A.1	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually. Convert a decimal expansion which repeats eventually into a rational number by analyzing repeating patterns.
8.NS.A.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations to the hundredths place.*
■ 8.F.B	■ Use functions to model relationships between quantities.
8.F.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.B.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
○ 8.G.C	○ Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
8.G.C.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
■ 8.SP.A	■ Investigate patterns of association in bivariate data.
8.SP.A.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP.A.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
8.SP.A.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
8.SP.A.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

Assessable Content for Mathematical Reasoning & Modeling Reporting Category (Type II, Type III)

LEAP Evidence Statements – Type II	
LEAP.II.8.1	Base reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane. Content Scope: Knowledge and skills articulated in ● 8.EE.B.6 - Tasks require students to derive the equation y=mx for a line through the origin and the equation y=mx+b for a line intersecting the vertical axis at b. ● 8.EE.C.8a
LEAP.II.8.2	Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions (if any). Content Scope: Knowledge and skills articulated in ● 8.EE.C.7a, 8.EE.C.7b, 8.EE.C.8b - Tasks may have three equations, but students are only required to analyze two equations at a time.
LEAP.II.8.3	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in ● 8.F.A.3 – Tasks require students to justify whether a given function is linear or nonlinear. ● 8.G.A.2, 8.G.A.4 ● 8.G.A.5 ● 7.RP.A, 7.NS.A, 7.EE.A – Tasks may have scaffolding.[1]
LEAP.II.8.4	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in ● 8.EE.C.8c
LEAP.II.8.5	Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content Scope: Knowledge and skills articulated in ● 8.EE.B.6 ● 8.G.A.2, 8.G.A.4 ● 8.G.B - Some of tasks require students to use the converse of the Pythagorean Theorem.

[1] Scaffolding in a task provides the student with an entry point into a pathway for solving a problem. In unscaffolded tasks, the student determines his/her own pathway and process.

LEAP Evidence Statements – Type III	
LEAP.III.8.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 8, requiring application of knowledge and skills articulated by the LSSM section of the Major Content Assessable Content table. Tasks may have scaffolding.[1]
LEAP.III.8.2	Solve multi-step contextual problems with degree of difficulty appropriate to grade 8, requiring application of knowledge and skills articulated in 7.RP.A, 7.NS.A.3, 7.EE, 7.G, and 7.SP.B. Tasks may have scaffolding.[1]
LEAP.III.8.3	Micro-models: Autonomously apply a technique from pure mathematics to a real-world situation in which the technique yields valuable results even though it is obviously not applicable in a strict mathematical sense (e.g., profitably applying proportional relationships to a phenomenon that is obviously nonlinear or statistical in nature) requiring knowledge and skills articulated in 8.EE.B.5, 8.EE.B.6, 8.F.A.2, 8.G.B.7, 8.F.B.4. Tasks may have scaffolding.[1] • 8.EE.B.6 -Tasks require students to derive the equation y=mx for a line through the origin and the equation y=mx+b for a line intersecting the vertical axis at b.
LEAP.III.8.4	Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity requiring knowledge and skills articulated in 8.EE.B.5, 8.EE.B.6, and/or 8.G.B.8. Tasks may have scaffolding.[1] • 8.EE.B.6 - Tasks require students to derive the equation y=mx for a line through the origin and the equation y=mx+b for a line intersecting the vertical axis at b.

Appendix B

Answer Key/Rubrics for Sample Items

Item Type	Key	Alignment
Multiple-Choice	D	8.EE.C.7
Multiple-Select	A, C, E	8.NS.A.1
TEI: Drag-and-Drop	**Equivalent to $7^8 \times 7^{-4}$**: $7^{(8-4)}$, $\frac{7^8}{7^4}$ **Not Equivalent to $7^8 \times 7^{-4}$**: $(7^8)^{-4}$, $\frac{7^8}{7^{-4}}$, 7^2, 7^{-2}, 7^{-32}	8.EE.A.1
TEI: Dropdown Menu/Short Answer Type I Task	Part A: [40] degree(s) Celsius. The temperature increased by [2] degree(s) Celsius every [1] Part B: 30	8.SP.A.3
TEI: Match Interaction		8.EE.C.8b

	No Solution	One Solution	Infinitely Many Solutions
$2x + 3y = -6$ $4x + 6y = -12$	☐	☐	☑
$x = 1$ $y = 2$	☐	☑	☐
$x - 2y = 4$ $x - 2y = 5$	☑	☐	☐
$y = 5x + 20$ $3y = 15x + 60$	☐	☐	☑

Item Type	Key	Alignment
Keypad Input	$y = \frac{3}{2}x + 12$ (or equivalent equation)	8.F.B.4
Type II Constructed- Response	See Rubric	LEAP.II.8.3
Type III Constructed- Response	See Rubric	LEAP.III.8.2

Type II Constructed-Response Rubric

PART A	
Score	**Description**
2	Reasoning component: Determines the claim is sometimes true with correct reasoning Sample Student Response: Cary's claim is sometimes true. For example, when 4 is substituted for m, -5 + 4 = -1. If the value of m is a number that is greater than 5, such as 6 where -5 + 6 = 1, then the expression results in a positive number. (Accept alternative valid explanations.)
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.
Part B	
Score	**Description**
2	Reasoning component: Determines the claim is always true with correct reasoning Sample Student Response: Phillip's claim is always true because p and –p are opposites. The sum of opposites is always 0. That makes the expression 0 + 5 which will always be positive 5. The value of p does not matter. 7 + 5 + (-7) = 0 + 5 = 5 and -3 + 5 + - (-3) = -3 + 5 + 3 = 0 + 5 = 5 and 0 + 5 + 0 = 5 since the opposite of 0 is 0. (Accept alternative valid explanations.)
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

Type III Constructed-Response Rubric

PART A	
Score	**Description**
2	Computation component: Correct amount of each payment, $80.73 Modeling component: Valid work shown or explanation given Sample Student Response: The discounted price is 75% of the original price, so I need to multiply the original price by 0.75. Then, I will multiply that amount by 0.08 to determine the sales tax. Adding the two together will give me the total price of the computer. I then divide the total price of the computer by 6 to determine the six monthly payments. $598.00 × 0.75 = $448.50, $448.50 × 0.08 = $35.88, $448.50 + $35.88 = $484.38 total cost, $484.38 ÷ 6 = $80.73 per month
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

Part B	
Score	**Description**
4	Computation components: Correct total price of the different computer, $602.64 and correct original price of the different computer, $930.00 Modeling components: Valid work shown or explanation given for each computation component Sample Student Response: The tax is $44.64, which is 8% of the sale price of the computer, d. $\frac{44.64}{d} = \frac{8}{100}$ 4464 = 8d The price of the computer after discount and sales tax is $602.64. 558.00 + 44.64 = 602.64 The sale price is 60% of the original price, p. $\frac{558.00}{p} = \frac{60}{100}$ 55800 = 60p p = 930.00
3	Student response includes 3 of the 4 elements.
2	Student response includes 2 of the 4 elements.
1	Student response includes 1 of the 4 elements.
0	Student response is incorrect or irrelevant.