Revised for the Most Recent TEKS

 STAAR®

 Student Practice Book

Sample Booklet

Grade 8

Mathematics

(Revised TEKS)

Lori Mammen

Editorial Director

A Research-Based Series for Texas

For more than two decades, we have helped you achieve student success on Texas tests by providing the highest quality test-prep materials. With STAAR MASTER®, we continue our commitment to create research-based content that engages students and makes teaching easier.

The TEKS for mathematics have undergone significant changes, and we have revised our STAAR MASTER® Student Practice Books for Math accordingly. The most prominent changes include:
• Reorganization of mathematics strands
• An all-new strand addressing “Personal Financial Literacy”
• An increased depth of understanding as to why and how mathematics processes work
Newly Revised Math!

STAAR MASTER®

Mathematics
Revised for the 2014–2015 eligible TEKS
Grades 3–8

The TEKS for mathematics have undergone significant changes, and we have revised our STAAR MASTER® Student Practice Books for Math accordingly. The most prominent changes include:

- Reorganization of mathematics strands
- An all-new strand addressing “Personal Financial Literacy”
- An increased depth of understanding as to why and how mathematics processes work

Get a head-start on new changes.

### STAAR MASTER® Student Practice Book Pricing

<table>
<thead>
<tr>
<th>Subject</th>
<th>Small Pack (15–29 copies)</th>
<th>Class Pack (30–59 copies)</th>
<th>School Pack (60+ copies)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English Versions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math, Gr. 3</td>
<td>$23.99 each</td>
<td>$20.99 each</td>
<td>$17.99 each</td>
</tr>
<tr>
<td>Math, Gr. 4</td>
<td>ECS99041-1529</td>
<td>ECS99041-3059</td>
<td>ECS99041-60</td>
</tr>
<tr>
<td>Math, Gr. 5</td>
<td>ECS99232-1529</td>
<td>ECS99232-3059</td>
<td>ECS99232-60</td>
</tr>
<tr>
<td>Math, Gr. 6</td>
<td>ECS99249-1529</td>
<td>ECS99249-3059</td>
<td>ECS99249-60</td>
</tr>
<tr>
<td>Math, Gr. 7</td>
<td>ECS99256-1529</td>
<td>ECS99256-3059</td>
<td>ECS99256-60</td>
</tr>
<tr>
<td>Math, Gr. 8</td>
<td>ECS99263-1529</td>
<td>ECS99263-3059</td>
<td>ECS99263-60</td>
</tr>
<tr>
<td><strong>Spanish Versions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math, Gr. 3</td>
<td>ECS99522-1529</td>
<td>ECS99522-3059</td>
<td>ECS99522-60</td>
</tr>
<tr>
<td>Math, Gr. 4</td>
<td>ECS99539-1529</td>
<td>ECS99539-3059</td>
<td>ECS99539-60</td>
</tr>
<tr>
<td>Math, Gr. 5</td>
<td>ECS99546-1529</td>
<td>ECS99546-3059</td>
<td>ECS99546-60</td>
</tr>
</tbody>
</table>

Available Fall 2014—FREE Teacher Guide (a $15.00 value) included with each pack. One free Teacher Guide included for every 30 copies of books when you order 30+ copies. Please note: Availability and delivery dates cannot be guaranteed. Each shipment will be invoiced separately unless you request one invoice. We accept school P.O.,

Call for more information.

ecslearningsystems.com/staarmaster
1.800.688.3224 (t) • 1.877.688.3226 (f) • Facebook YouTube
Revised for the Most Recent TEKS

STAAR MASTER®
Student Practice Book

ecslearningsystems.com
Revised for the Most Recent TEKS

STAAR MASTER®

Reading • Mathematics • Writing • Social Studies • Science • Algebra I
English and Spanish versions

Credible
Same ECS quality
• based on most recent eligible TEKS and STAAR® test blueprints
• practice items marked with complexity level (L, M, or H)
• questions labeled with “skill tags”

Authentic
Reflects key characteristics of STAAR®
• increased rigor
• emphasis on readiness standards
• more open-ended [griddable] items [mathematics and science]
• assessment of process skills within context (mathematics, science, and social studies)

Fresh
Includes challenging, original content
• targeted practice in a variety of contexts
• range of topics to interest students
• clear and consistent page layout
• complete answer keys for teachers

ecslearningsystems.com

We make teaching easier!℠

ECS Learning Systems, Inc.
P.O. Box 440 • Bulverde, TX 78163-0440
1.800.688.3224

© ECS Learning Systems, Inc.
Dear Texas Educator,

Since 1982, ECS Learning Systems has created quality K–12 teaching materials, training, and media. As a Texas-based publisher of the highest quality test-prep materials, we have always shared your commitment to lead your students to success on Texas tests—TEAMS, TAAS, TAKS, and now the STAAR®. With STAAR MASTER®, we continue our commitment to create research-based content that engages students and makes teaching easier.

The STAAR MASTER® series includes new, challenging content to prepare students for the rigor of the STAAR. It’s what you have come to expect from the most trusted source in Texas testing. Check our Web site often for the latest information at ecslearningsystems.com/staarmaster.

As you use STAAR MASTER® in your classroom, we hope to hear from you! Send us your story and let us know:

• Why you need our product(s)
• How you use them in your classroom
• What outcomes and results you are experiencing

At ECS, we strive to provide educators like you with easy-to-use and effective materials that make teaching easier. We count it as a privilege to have you as a customer, and we hope that our products continuously exceed your expectations.

Please let us know how well the STAAR MASTER® products worked in your classroom. Also, please spread the word—many of our new customers are referred by teachers like you.

Sincerely,

Your ECS Team

p.s. It’s easy to share your story! Visit our Re:Think blog at ecslearningsystems.com/blog and click the Re:Tell button.

Table of Contents

- Inside the Teacher Guide ........................................... 3
- Inside the Student Practice Book ................................. 3
- Descriptions of STAAR MASTER® Complexity Levels ...... 5
- How to Use This Book .............................................. 6
- Quick Tips for Instruction .......................................... 6
- Mathematics Vocabulary ........................................... 7
- Vocabulary Strategies ................................................ 8

- Inside the Mathematics Classroom ............................ 9
  • Using Manipulatives
  • Achieving Math Success
  • The Importance of “Math-Talk”
  • Using Open-Ended Questions
  • A Quick Look at Problem Solving
  • A Quick Look at Technology
  • Improving Mathematics Instruction

- Master Skills List .................................................. 14
- Answer Key .......................................................... 17
- References ............................................................ 20

ECS Learning Systems, Inc. • P.O. Box 440 • Bulverde, TX 78163-0440
ecslearningsystems.com
1.800.688.3224 (t) • 877.688.3226 (f) • customerservice@ecslearningsystems.com

STAAR MASTER® Student Practice Book, Teacher Guide—Mathematics, Grade 8
Inside the Teacher Guide
This teacher guide includes the following information—
- An overview of the STAAR® Student Practice Book and some key characteristics of the State of Texas Assessments of Academic Readiness (STAAR®) for Mathematics
- Descriptions of complexity levels assigned to practice items
- Strategies/suggestions for mathematics instruction and test preparation
- A mathematics vocabulary list for the appropriate grade level
- A master list of STAAR-eligible standards and expectations from the Texas Essential Knowledge and Skills (TEKS) for Mathematics (adopted 2014), including mathematical process skills
- A complete answer key, with corresponding complexity levels for each practice item

Inside the Student Practice Book
The STAAR® Student Practice Book provides practice and review material for the Grade 8 Mathematics portion of the STAAR. The content reflects key components and characteristics of the yearly state assessment, including the following.
- The practice items focus on the grade-specific content of the STAAR-eligible TEKS for Mathematics adopted in 2014, including mathematical process skills.
- The practice items reflect the kinds of problems students might encounter on the actual STAAR.
- Whenever possible, practice items reflect a “real-world” context, covering a broad range of topics and ideas of interest to students.
- Each exercise is labeled for easy identification of the TEKS reporting category, standard, and expectation addressed in the practice items.
- Several exercises address the same standard/expectation, providing repeated practice for students in a variety of contexts.
- Selected practice items are “griddable questions,” reflecting the format used on the actual STAAR.

Items in each student practice book address the standards and student expectations found within the reporting categories for the grade level.
- Reporting Category 1: Numerical Representations and Relationships
- Reporting Category 2: Computations and Algebraic Relationships
- Reporting Category 3: Geometry and Measurement
- Reporting Category 4: Data Analysis and Personal Financial Literacy

The majority of items in the book also address the “Mathematical Process Standards” in the TEKS. Mastery of these standards and expectations is not reported under a separate category, but is incorporated into items throughout the four reporting categories.

Note: Each exercise in the student practice book focuses on only one student expectation, with one important exception. Each exercise related to personal financial literacy includes a mix of the grade-level student expectations for that standard. Many of the student expectations for this topic are narrow in scope (e.g., 8.12A: Solve real-world problems comparing how interest rate and loan length affect the cost of credit). For this reason, the editors found it difficult to include a variety of item types within each exercise. By including a mix of practice items for all the student expectations in each exercise, the editors believe students will find them more interesting and realistic. In addition, there is less chance that the correct answer to one item will “give away” the correct answer to another item on the same page.

Skills Tags: Each exercise includes a “skills tag” (see Figure 1) for easy identification of the TEKS-based standard and student expectation addressed in the exercise.

Readiness vs. Supporting Standards: The standards found in the STAAR-eligible TEKS are categorized as “readiness standards” or “supporting standards,” with greater emphasis on the former. Readiness standards address broader, deeper ideas and are considered more critical for students to know and master. Supporting standards address more narrowly defined ideas. While supporting standards are assessed, they receive less emphasis. The STAAR® Student Practice Book mirrors this balance of readiness and supporting standards to provide meaningful, authentic practice for students.
Griddable Questions: In addition to multiple-choice items, the STAAR® for Mathematics also includes open-ended questions known as “griddable questions” (Texas Education Agency, 2014d). These open-ended items allow students to solve a problem without the influence of given answer choices. The answer grid for Grade 8 has eight columns, with one column designated for a positive or negative sign and one column designated for a fixed decimal point (see Figure 2). All correct answers will be positive or negative numbers that range from -9,999.99 to 9,999.99. To indicate their answer, students enter the appropriate number(s) in the boxes and then fill in the corresponding “bubble(s)” below the number(s). Students will not grid units of measure (e.g., ft). It is acceptable for students to grid a zero as long as it does not affect the value of the correct answer. Students must enter a negative sign for a negative number. If the student does not mark a sign, the answer is assumed to be positive.

Mathematical Process Standards: The Mathematical Process Standards are not tested in isolation, nor do they appear in a separate reporting category. Rather, these standards are incorporated into items based on content standards from the four reporting categories and are reported along with those content standards. Similarly, items in the student practice book require students to demonstrate understanding of these important mathematical processes within the context of each problem. When a practice item requires the application of a process skill, a tag identifies the process standard and expectation addressed (see Figure 3).

Increased Rigor: Many educators describe the STAAR® as “more rigorous” than previous state assessments, but what does rigor mean? Academic rigor is a measure of the cognitive demand required by a specific test item. In a rigorous system, standards, curriculum, instruction, and assessment tightly align with congruent measures of cognitive complexity. In a rigorous system, students must demonstrate a deep mastery of skills and understanding through rich, complex tasks. Students will definitely encounter problems that require higher levels of thinking than required on previous assessments. The student practice book includes items written at varying levels of complexity to reflect the kind of rigor students can expect on the actual test. Teachers should refer to “Depth of Knowledge” below for more information about the levels of complexity in practice items.

Depth of Knowledge: Norman Webb’s “depth-of-knowledge” model (2002a) is currently an influential alignment model in education. “Depth of knowledge” describes the degree of complexity required to solve a particular problem. Distinct cognitive demands occur at each level. Webb defines four levels of depth of knowledge: Level 1: Recall; Level 2: Skill or Concept; Level 3: Strategic Thinking; and Level 4: Extended Thinking.

Using a modified version of Webb’s depth-of-knowledge model (see page 5 of this teacher guide), we have aligned items in the STAAR® Student Practice Book to the TEKS. The complexity levels assigned to the items appear in the Answer Key.
Descriptions of STAAR MASTER® Complexity Levels

The following descriptions provide an overview of the three complexity levels used to align the STAAR MASTER® Student Practice Book items to the STAAR®-eligible TEKS. Each explanation details the kinds of activities that occur within each level. However, they do not represent all of the possible thought processes for each level.

Low Complexity (L)
Low-complexity items align with the TEKS at Level 1 of the Webb (2002a) model. Items of low complexity involve recall and reproduction. Activities and problems at this level require routine, single-step methods. An item may ask students to recognize or restate a fact, definition, or term. For example, students may need to identify attributes of a geometric figure. Items of this complexity may require students to follow a basic procedure with clearly defined steps. At this cognitive level, students may need to apply a formula or perform a simple algorithm. Some major concepts represented at this level include arithmetic facts, perimeter, and converting units of measure. A low-complexity item may ask students to identify, recognize, use, or measure information and concepts.

Moderate Complexity (M)
Moderate-complexity items align with the TEKS at Level 2 of the Webb model. Items of moderate complexity involve both comprehension and the subsequent processing of information. Activities at this level demand more than one step in the reasoning process. Students are asked to determine how to best solve the problem. An item may ask students to generate a table of paired numbers based on a real-life situation. Items may involve using a model to solve a problem. At this cognitive level, students will need to visualize for tasks such as extending patterns and determining nonexamples. Items may involve interpreting information from a simple graph, table, or diagram. At this cognitive level, students will need to make and test conjectures, and support their responses. High-complexity items may require students to make generalizations from patterns. Items may involve interpreting information from a complex graph, table, or diagram. Students will use concepts to solve and explain problems, such as how changes in dimensions affect the volume of a figure. A high-complexity item may ask students to plan, reason, explain, compare, differentiate, draw conclusions, cite evidence, analyze, synthesize, apply, or prove. Some items also require students to apply low- and/or moderate-complexity skills and concepts.

High Complexity (H)
High-complexity items align with the TEKS at Level 3 and/or Level 4 of the Webb model. Items of high complexity require students to use strategic, multi-step thinking; develop a deeper understanding of the information; and extend thinking. The problems at this level are non-routine and more abstract. Students are asked to demonstrate more flexible thinking, apply prior knowledge, make and test conjectures, and support their responses. High-complexity items may require students to make generalizations from patterns. Items may involve interpreting information from a complex graph, table, or diagram. At this cognitive level, students will need to justify the reasonableness of a solution process when more than one solution exists. Students will use concepts to solve and explain problems, such as how changes in dimensions affect the volume of a figure. A high-complexity item may ask students to plan, reason, explain, compare, differentiate, draw conclusions, cite evidence, analyze, synthesize, apply, or prove. Some items also require students to apply low- and/or moderate-complexity skills and concepts.

Low Complexity

1. A square has an area of 157 square centimeters. The length of the square’s sides would be between—
   A 11 cm and 12 cm
   B 12 cm and 13 cm
   C 13 cm and 14 cm
   D 14 cm and 15 cm

Moderate Complexity

3. Jason had a $12,000 home improvement loan. He made a monthly payment of $380 and paid off the entire loan in 3 years. What was the total amount Jason paid in interest on the loan?
   A $680
   B $1,140
   C $1,640
   D $1,680

High Complexity

4. A car can travel 310 miles on 8 gallons of gas. Which equation best represents the linear relationship between x, the number of gallons of gas, and y, the total distance the car can travel?
   A x = 40y
   B x = 4y
   C y = 38.75x
   D y = 37.85x

*Note: Although state standards may include expectations that require extended thinking, many large-scale assessment activities are not classified as Level 4. Performance and open-ended assessments may require activities at Level 4.
How to Use This Book

Effective Test Preparation: What is the most effective way to prepare students for any mathematics competency test? Experienced educators know that the best test preparation includes three critical components—
- a strong curriculum aligned with the content and skills to be assessed
- effective, relevant, and varied instructional methods that allow students to learn content and skills in many different ways
- targeted practice that familiarizes students with the specific content and format of the test

A strong curriculum and effective, relevant, varied instructional methods provide the foundation for all appropriate test preparation. Merely “teaching the test” performs a great disservice to students, who must acquire knowledge, practice skills, and have important educational experiences that can never be measured on tests limited by time and in scope. For this reason, resources like the STAAR MASTER® Student Practice Book should never become the heart of the curriculum or replace strong instructional methods.

Targeted Practice: The STAAR MASTER Student Practice Book does address the final element of effective test preparation by providing meaningful targeted practice. This book familiarizes students with the specific content of the STAAR for mathematics and the general format of competency tests. When students are familiar with both the content and the format of a test, they know what to expect on the actual test. This, in turn, improves their chances for success.

Using STAAR MASTER® Products: When used as part of the regular curriculum, the STAAR MASTER Student Practice Book allows teachers to—
- pretest skills that students must demonstrate for the actual test
- determine students’ areas of strength/weakness
- assess student performance at different complexity levels
- provide meaningful test-taking practice for students
- ease students’ test anxiety
- communicate test expectations and content to parents

Quick Tips for Instruction

Math Tips for Instruction

Math teachers have myriad instructional strategies and materials available to them. The following ideas can serve as springboards for effective mathematics instruction. Teachers should use those that are appropriate for their students.

Group Work: Helen Keller once said, “Alone we can do so little; together we can do so much.” This is absolutely true in the mathematics classroom! Students who struggle when working alone often benefit by working with others. Students (and the teacher!) can work through selected practice exercises together, first noting what each problem involves. They should also note the range of problem-solving techniques found within a group. Group work also lets students discuss common errors and strategies for avoiding them.

Formulating Answers: Teachers should encourage students to formulate their own answers before they even look at available answer choices. For instance, students can treat every problem in an exercise as a “go on” question and actually solve each problem before reading the answer choices. This approach discourages “guessing” an answer or an over-reliance on mental math since students read the answer choices only after finding the answers on their own.

Developing Fundamental Understanding: Teachers promote the recognition of “real-world” mathematics when they develop and use problems relevant to students’ daily experiences at school and at home. Working through “real” problems can also foster an understanding of the mathematics process standards.

Mathematics Vocabulary: Effective communication in mathematics requires the use of precise language (e.g., Adams, 2005; Harmon, Hedrick, & Wood, 2005). This includes understanding symbols, definitions, notations, and other developmentally appropriate language. A mathematics vocabulary list appears on page 7 of this teacher guide, and some simple vocabulary strategies appear on page 8. Most important, however, is that teachers use precise vocabulary when teaching mathematics. Students should know and be expected to use precise language, as well.

Math Manipulatives: The correct use of math manipulatives provides concrete stepping stones to understanding abstract concepts. Recommended math manipulatives and suggestions for their use appear on page 9 of this teacher guide.
Answer Key

Note: Complexity levels appear in parentheses. L = Low, M = Moderate, H = High

<table>
<thead>
<tr>
<th>Reporting Category 1 Exercise 1</th>
<th>Exercise 2</th>
<th>Exercise 3</th>
<th>Exercise 4</th>
<th>Exercise 5</th>
<th>Exercise 6</th>
<th>Exercise 7</th>
<th>Exercise 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exercise 9 Exercise 10</th>
<th>Exercise 11</th>
<th>Exercise 12</th>
<th>Exercise 13</th>
<th>Exercise 14</th>
<th>Exercise 15</th>
<th>Exercise 16</th>
<th>Exercise 17</th>
<th>Exercise 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

STAAR MASTER® Mathematics References

*All Web sites listed were active at time of publication.


STAAR MASTER® Student Practice Book, Teacher Guide—Mathematics, Grade 8
Selected pages from

STAAR MASTER®

Student Practice Book
Mathematics, Grade 8

for the State of Texas Assessments of Academic Readiness

Lori Mammen
Editorial Director

ISBN: 978-1-60539-927-0

Copyright infringement is a violation of Federal Law.

© 2015 by ECS Learning Systems, Inc., Bulverde, Texas. All rights reserved. No part of this publication may be reproduced, translated, stored in a retrieval system, or transmitted in any way or by any means (electronic, mechanical, photocopying, recording, or otherwise) without prior written permission from ECS Learning Systems, Inc.

Reproduction of any part of this publication for an entire school or for a school system, by for-profit institutions and tutoring centers, or for commercial sale is strictly prohibited.

Printed in the United States of America. STAAR MASTER is a registered trademark of ECS Learning Systems, Inc.

Disclaimer Statement
ECS Learning Systems, Inc., recommends that the purchaser/user of this publication preview and use his/her own judgment when selecting lessons and activities. Please assess the appropriateness of the content and activities according to grade level and maturity of your students. The responsibility to adhere to safety standards and best professional practices is the duty of the teachers, students, and/or others who use the content of this publication. ECS Learning Systems is not responsible for any damage, to property or person, that results from the performance of the activities in this publication.

STAAR is a registered trademark of Texas Education Agency. STAAR MASTER and ECS Learning Systems, Inc., are not affiliated with or sponsored by the Texas Education Agency or the State of Texas.
# Table of Contents

Mathematics Chart ........................................................................................................ 4
Reporting Category 1 ................................................................................................. 5
Numerical Representations and Relationships
Reporting Category 2 ............................................................................................ 21
Computations and Algebraic Relationships
Reporting Category 3 ............................................................................................ 107
Geometry and Measurement
Reporting Category 4 ............................................................................................ 179
Data Analysis and Personal Financial Literacy
Reference Materials ............................................................................................. 223

---

ECS Learning Systems, Inc.
P. O. Box 440
Bulverde, TX 78163-0440
cslearningystems.com
1.800.688.3224 (t)
1.877.688.3226 (f)
customercare@cslearningystems.com

---

STAAR MASTER® Student Practice Book—Mathematics, Grade 8

© ECS Learning Systems, Inc.
8.2A: Extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers (Supporting Standard)

**Exercise 1**

**Reporting Category 1**
**Numerical Representations and Relationships**

1. Which diagram could be used to classify all the numbers in the real number system?

   - **A**
     - Rational Numbers
     - Real Numbers | Irrational Numbers

   - **B**
     - Real Numbers
     - Rational Numbers | Irrational Numbers

   - **C**
     - Rational Numbers
     - Real Numbers | Irrational Numbers

   - **D**
     - Real Numbers
     - Rational Numbers | Irrational Numbers

2. Which of the following is an irrational number?
   - **A** \( \frac{1}{3} \)
   - **B** \( \sqrt{6} \)
   - **C** \( \sqrt{16} \)
   - **D** \( -\frac{1}{3} \)

3. Which of the following sets includes only rational numbers?
   - **A** \(-5\), \( \frac{3}{4} \), \( \sqrt{49} \)
   - **B** \( \frac{1}{4} \), \( 5 \), \( \sqrt{12} \)
   - **C** \(-\frac{1}{2} \), \( -3 \), \( \sqrt{8} \)
   - **D** \( \frac{1}{7} \), \( 9 \), \( \sqrt{11} \)

4. A teacher asked students to classify numbers A and B below.
   
   A. \( 0.28316049\ldots \)
   B. \( \sqrt{28} \)

   Which statement describes the correct classification(s) of the numbers?
   - **A** Both numbers are real numbers.
   - **B** Both numbers are rational, irrational, and real numbers.
   - **C** Number A is a rational number, and number B is an irrational number.
   - **D** Number A is an irrational number, and number B is a rational number.
Reporting Category 2  
Computations and Algebraic Reasoning  
Exercise 16

8.4C: Use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems (Readiness Standard)

Use the following information to answer questions 1 and 2.

Using earnings from her after-school job, Alice deposits the same amount of money into her savings account each month. She made the table to the right to show the total amount she has saved over several months.

<table>
<thead>
<tr>
<th>Number of Months</th>
<th>Total Saved</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>$75</td>
</tr>
<tr>
<td>5</td>
<td>$125</td>
</tr>
<tr>
<td>7</td>
<td>$175</td>
</tr>
<tr>
<td>9</td>
<td>$225</td>
</tr>
</tbody>
</table>

Alice’s Savings Account

1. Alice created a graph to show the data from the table above. Which graph correctly represents the data from the table?

A

B

C

D

2. What is the slope of the linear function shown on the correct graph in question 1?

A 1  
B 3  
C 25  
D 35
Reporting Category 3
Geometry and Measurement

Exercise 29

8.7B: Use previous knowledge of surface area to make connections to the formulas for lateral and total surface area, and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders (Readiness Standard)

1. The silo at a farm is shaped like a cylinder with a half-sphere on the top, as shown in the drawing below.

What is the lateral surface area of the silo, in square feet? (Use 3.14 for \( \pi \).)

Record your answer in the boxes. Then fill in the bubbles. Be sure to use the correct place value.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. A label covers the outside of each soup can, like the one shown in the diagram below.

Each label must cover an area of at least—

A 12.56 in.\(^2\)  
B 13.66 in.\(^2\)  
C 34.75 in.\(^2\)  
D 75.36 in.\(^2\)

3. Annette will use decorative tiles to cover a storage box like the one shown in the diagram below.

If Annette uses one-inch square tiles, how many tiles will she need to cover the entire box?

A 64  
B 192  
C 218  
D 384
Use the following information to answer questions 1–4.

Carter and Elena will attend either the local university in their hometown or an out-of-town university about 300 miles away. The table below shows the cost of attending both universities for one year.

### Costs at Two Universities

<table>
<thead>
<tr>
<th>University</th>
<th>Tuition &amp; Fees</th>
<th>Room &amp; Board</th>
<th>Books</th>
<th>Additional Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>$20,480</td>
<td>$5,274</td>
<td>$1,300</td>
<td>$840</td>
</tr>
<tr>
<td>Out-of-Town</td>
<td>$25,385</td>
<td>$9,350</td>
<td>$1,500</td>
<td>$2,350</td>
</tr>
</tbody>
</table>

1. Carter’s parents have saved $12,460, and he earned a $6,500 yearly scholarship. He must cover all of the remaining expenses with student loans. Assuming Carter will be living on campus, how much will he need in student loans to attend the out-of-town university for one year?
- A $8,034
- B $10,275
- C $15,775
- D $19,625

2. Elena’s parents can pay for her tuition and fees, but she will be responsible for all her other expenses. She could pay $3,500 a year to share an apartment near the out-of-town university with a friend. How much will Elena save by renting the apartment rather than living on campus?
- A $1,774
- B $4,235
- C $5,850
- D $6,743

3. Carter and Elena will attend classes for at least 4 years to finish their college education. How much could each of them save in just tuition and fees by attending the local university for 4 years rather than the out-of-town one?
- A $4,905
- B $8,981
- C $16,620
- D $19,620

4. If Carter decides to attend the out-of-town university, how much more will he pay for his 4-year education there than at the local university?
- A $10,691
- B $11,311
- C $42,764
- D $78,480

---

8.12G: Estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college (Supporting Standard)
It’s On The Test
From TestSMART® Student Practice Books to elementary-level skills practice, ECS has all the test preparation materials you need.

Math
ECS2401 TestSMART® Math Concepts Gr. 3
ECS241X TestSMART® Math Operations & Problem Solving Gr. 3
ECS2428 TestSMART® Math Concepts Gr. 4
ECS2436 TestSMART® Math Operations & Problem Solving Gr. 4
ECS2444 TestSMART® Math Concepts Gr. 5
ECS2452 TestSMART® Math Operations & Problem Solving Gr. 5
ECS2460 TestSMART® Math Concepts Gr. 6
ECS2479 TestSMART® Math Operations & Problem Solving Gr. 6
ECS2487 TestSMART® Math Concepts Gr. 7
ECS2495 TestSMART® Math Operations & Problem Solving Gr. 7
ECS2509 TestSMART® Math Concepts Gr. 8
ECS2517 TestSMART® Math Operations & Problem Solving Gr. 8
ECS1030 Math Whiz Kids™ at the Amusement Park Gr. 3–5
ECS1057 Math Whiz Kids™ at the Mall Gr. 3–5
ECS1049 Math Whiz Kids™ at the Zoo Gr. 3–5
BH88931 Sight Word Stories Gr. K–2
BH88912 Sight Word Rhymes Gr. K–2
BH88913 Sight Word Search Gr. K–2
BH88914 Wall Words Search Gr. K–2
BH88915 My First Crosswords Gr. K–2
BH88916 Sight Words in Context Gr. K–2
BH88919 Rhyming Words in Context Gr. K–2
BH88920 Word Endings in Context Gr. K–2
BH88961 Poems & Rhymes Gr. K–2
BH88962 Fairy Tales Gr. 2–3
BH88963 Fables & Tall Tales Gr. 2–3
BH88972 Analogies Gr. K–2
BH88973 Space, Stars, & Planets Gr. 2–3
BH88982 Getting the Sequence Gr. 1–2
BH88983 Main Idea and Details Gr. 1–2
BH88984 Fact and Opinion Gr. 1–2
BH88985 Drawing Conclusions and Inferences Gr. 1–2
BH88986 Context Clues Gr. 1–2
BH88989 My First Sight Words Gr. K–2
BH88990 Mastering Sight Words Gr. K–2
BH88992 Mastering Sight Words Gr. K–2
BH88993 Context Clues Gr. K–2
BH88994 Consonants Gr. K–2
BH88995 Blends & Digraphs Gr. K–2
BH88996 Short Vowels Gr. K–2
BH88997 Long Vowels Gr. K–2
BH88998 Rhyming Words Gr. K–2
BH88999 Compounds & Contractions Gr. K–2
NU790RX Graphic Organizer Collection
NU457RX Reading to Literature: Writing Activities for Every Book Gr. 6–8
NU552RX Reading to Literature: Writing Activities for Every Book Gr. 9–12
NU599RX Graphic Organizer Collection
ECS6564 POWeR Strategies™ for Reading Comprehension Gr. 3–5
ECS6571 POWeR Strategies™ for Reading Comprehension Gr. 6–8

Reading
ECS2363 TestSMART® Reading Gr. 2
ECS1987 TestSMART® Reading Gr. 3
ECS1995 TestSMART® Reading Gr. 4
ECS2002 TestSMART® Reading Gr. 5
ECS2010 TestSMART® Reading Gr. 6
ECS2029 TestSMART® Reading Gr. 7
ECS2037 TestSMART® Reading Gr. 8
ECS91373 An Introduction to POWeR Words™ Gr. 4
ECS8414 POWeR Words™ Gr. 5–6
ECS5214 POWeR Words™ Gr. 7–8
ECS5494 POWeR Words™ Gr. 9–12
BH88891 Plurals & Possessives Gr. 2–3
BH88892 Prefixes, Suffixes, Root Words Gr. 2–3
BH88893 Synonyms, Antonyms, and Homonyms Gr. 2–3
BH88894 Analogies & Multiple Meanings Gr. 2–3
BH88901 Alpha/Pop Skills Gr. K–1
BH88902 Consonant Sounds Gr. K–1
BH88903 Vowel Sounds Gr. 1–2
BH88904 Rhyming Words Gr. 1–2
BH88905 Sight Words Gr. 1–2
BH88911 Sight Word Stories Gr. K–2
BH88950 Word Endings in Context Gr. K–2
BH88961 Poems & Rhymes Gr. K–2
BH88962 Fairy Tales Gr. 2–3
BH88963 Fables & Tall Tales Gr. 2–3
BH88972 Analogies Gr. K–2
BH88973 Space, Stars, & Planets Gr. 2–3
BH88982 Getting the Sequence Gr. 1–2
BH88983 Main Idea and Details Gr. 1–2
BH88984 Fact and Opinion Gr. 1–2
BH88985 Drawing Conclusions and Inferences Gr. 1–2
BH88986 Context Clues Gr. 1–2
BH88990 My First Sight Words Gr. K–2
BH88992 Mastering Sight Words Gr. K–2
BH88993 Context Clues Gr. K–2
BH88994 Consonants Gr. K–2
BH88995 Blends & Digraphs Gr. K–2
BH88996 Short Vowels Gr. K–2
BH88997 Long Vowels Gr. K–2
BH88998 Rhyming Words Gr. K–2
BH88999 Compounds & Contractions Gr. K–2
NU790RX Graphic Organizer Collection
NU457RX Reading to Literature: Writing Activities for Every Book Gr. 6–8
NU552RX Reading to Literature: Writing Activities for Every Book Gr. 9–12
NU599RX Graphic Organizer Collection
ECS6564 POWeR Strategies™ for Reading Comprehension Gr. 3–5
ECS6571 POWeR Strategies™ for Reading Comprehension Gr. 6–8

Writing
ECS3645 TestSMART® Language Arts Gr. 2
ECS3580 TestSMART® Language Arts Gr. 3
ECS3599 TestSMART® Language Arts Gr. 4
ECS3602 TestSMART® Language Arts Gr. 5
ECS3610 TestSMART® Language Arts Gr. 6
ECS3629 TestSMART® Language Arts Gr. 7
ECS3637 TestSMART® Language Arts Gr. 8
ECS9092 Test Writing: Warm-Ups Gr. K–6
ECS9095 Writing: Warm-Ups Two Gr. K–6
ECS9096 Writing: Warm-Ups Two Gr. 7–12
ECS0484 Not More Writing? Gr. 9–12
ECS9090 Foundations for Writing Gr. 1–2
ECS0476 Foundations for Writing Gr. 2–3
BH88925 Scrambled Sentences Gr. 1–2
BH88926 Writing Sentences Gr. 1–2
BH88927 Writing Paragraphs Gr. 3–4
ECS2371 Grammar Notebook Book 1 Gr. 9–12
ECS238X Grammar Notebook Book 2 Gr. 9–12
ECS2398 Grammar Notebook Book 3 Gr. 9–12

Spanish-Reading
BH1469 Getting the Sequence Gr. 1–3
BH1477 Main Idea and Details Gr. 1–3
BH1493 Fact and Opinion Gr. 1–3
BH1485 Drawing Conclusions and Inferences Gr. 1–3
BH140X The 5 W’s & H Gr. 4–5
BH1418 Getting the Sequence Gr. 4–5
BH1426 Main Idea and Details Gr. 4–5
BH1442 Fact & Opinion Gr. 4–5
BH1434 Drawing Conclusions & Inferences Gr. 4–5

Spanish-Math
BH1469 Dot-to-Dot 1–100 Gr. 2–4
BH1464 Math Art Gr. 2–3
BH1461 Math Drill, Practice & Apply Gr. 1–2
BH1417 Time & Money Skills Gr. 1–2
BH140X The 5 W’s & H Gr. 4–5
BH1418 Getting the Sequence Gr. 4–5
BH1426 Main Idea and Details Gr. 4–5
BH1442 Fact & Opinion Gr. 4–5
BH1434 Drawing Conclusions & Inferences Gr. 4–5

Get Reading!! kits use the best of young people’s literature to emphasize common elements among three literature selections. Ideal for RTI and leveled assessment, Get Reading!! helps you reinforce important skills in reading and literature at the same time.

Need leveled, thematic kits?
Elementary • Middle • High School  Fiction • Nonfiction

TestSMART® books are used by thousands of teachers nationwide.
TestSMART® practice items are correlated to skills tested on major state-mandated tests for states such as CA, FL, GA, IL, NJ, NY, NC, OH, PA, SC, TX, VA, etc.

800.688.3224 • customercare@ecslearningsystems.com
Bundle and Save!

SAVE $90 on Super 30 Bundles

Each Super 30 Bundle includes:
30 STAAR MASTER® Student Practice Books
30 STAAR MASTER® Companion Work Texts
30 STAAR MASTER® Practice Tests, Form A
30 STAAR MASTER® Practice Tests, Form B
30 STAAR MASTER® Companion Quick Checks
FREE Teacher Guides

Highlights
• Over 600 activities & questions for each grade!
• Practice Tests for benchmarking and diagnostics
• All NEW Companion Work Texts and Quick Checks—repeated test practice in a themed lesson/unit format that incorporates a new, “mixed-practice” approach to cover the entire reading process

SAVE $30 on 30/30/30 Bundles

Each 30/30/30 Bundle includes:
30 STAAR MASTER® Student Practice Books
30 STAAR MASTER® Practice Tests, Form A
30 STAAR MASTER® Practice Tests, Form B
FREE Teacher Guides

Highlights
• Over 250 items for each grade in Reading
• Over 500 items for each grade in Math
• Over 250 items/prompts for each grade in Writing
• Practice Tests for benchmarking and diagnostics

Order Today!
ecslearningsystems.com/staarmaster
1.800.688.3224 (t) • 1.877.688.3226 (f) •
ECS Learning Systems, Inc. is the SOLE SOURCE for STAAR MASTER®

© ECS Learning Systems, Inc.