By RON LARSON and LAURIE BOSWELL

Big Ideas Learning® is pleased to introduce a new and complete high school program built for student success—Big Ideas Math®: A Bridge to Success Algebra 1, Geometry, and Algebra 2. Big Ideas Math: A Bridge to Success is a research-based program that provides a rigorous, focused, and coherent curriculum for high school students.

Program Highlights

• Dynamic Technology for the 21st-Century Classroom
• Complete Support for Teachers in Lesson Planning and Lesson Presentation
• Dynamic Assessment System
• Research-Based Content and Delivery
• Rigorous, Focused, and Coherent Curriculum
• Balanced Approach to Instruction
• Continuous Preparation for High-Stakes Assessment
• Embedded RTI, Differentiated Instruction, and ELL Support
No other authorship team in the industry provides the balance of classroom experience and mathematical expertise that the Big Ideas Math program authors bring to the table.

RON LARSON, Ph.D.

Ron Larson, Ph.D., is well known as the lead author of a comprehensive program for mathematics that spans middle school, high school, and college courses. He holds the distinction of Professor Emeritus from Penn State Erie, The Behrend College, where he taught for nearly 40 years. He received his Ph.D. in mathematics from the University of Colorado. Dr. Larson’s numerous professional activities keep him actively involved in the mathematics education community and allow him to fully understand the needs of students, teachers, supervisors, and administrators.

LAURIE BOSWELL, Ed.D.

Laurie Boswell, Ed.D., is the Head of School and a mathematics teacher at the Riverside School in Lyndonville, Vermont. Dr. Boswell is a recipient of the Presidential Award for Excellence in Mathematics Teaching and has taught mathematics to students at all levels, from elementary through college. Dr. Boswell is a Tandy Technology Scholar and served on the NCTM Board of Directors from 2002 to 2005. She currently serves on the board of NCSM and is a popular national speaker.

Dr. Larson and Dr. Boswell began writing together in 1992. Since that time, they have authored over three dozen textbooks. In their collaboration, Ron is primarily responsible for the Student Edition while Laurie is primarily responsible for the Teaching Edition.
Program Philosophy

Rigor and Balance with Embedded Mathematical Practices

The Big Ideas Math program balances conceptual understanding with procedural fluency. Real-life applications help turn mathematical learning into an engaging and meaningful way to see and explore the real world.

Embedded Mathematical Practices in grade-level content promote a greater understanding of how mathematical concepts are connected to each other and to real-life scenarios.

Mathematically proficient students carefully specify units of measure.

1.1 Solving Simple Equations

Essential Question: How can you use simple equations to solve real-life problems?

EXPLORATION 1 Measuring Angles

Work with a partner. Use a protractor to measure the angles of each quadrilateral. Copy and complete the table to organize your results. (The notation \( m\angle A \) denotes the measure of angle \( A \).) How precise are your measurements?

EXPLORATION 2 Making a Conjecture

Work with a partner. Use the completed table in Exploration 1 to write a conjecture about the sum of the angle measures of a quadrilateral. Draw three quadrilaterals that are different from those in Exploration 1 and use them to justify your conjecture.
Essential Question: How can you use multi-step equations to solve real-life problems?

Exploration 1: Solving for the Angle Measures of a Polygon

Work with a partner. The sum of the angles of a polygon with \( n \) sides can be found using the formula \( S = 180(n-2) \). Write and solve an equation to find each value of \( x \). Justify the steps in your solution. Then find the angle measures of each polygon. How can you check the reasonableness of your answers?

a. \( 14x + 5 = 180 \)
   \( x = 10 \)

b. \( 10x + 10 = 180 \)
   \( x = 15 \)

c. \( 15x = 1080 \)
   \( x = 72 \)

d. \( 18x = 30 \)
   \( x = 1.67 \)

e. \( 20x = 150 \)
   \( x = 7.5 \)

3. The sum of the angle measures of a polygon is 1080º. How many sides does the polygon have?

4. Solve the equation to find the angle measures of the polygon your partner drew. Explain whether your answers seem reasonable. Explain.

The solution is \( x = 1.67 \).

Essential Question: How can you use multi-step equations to solve real-life problems?

Justifying Conclusions: To be proficient in math, you need to make sure your answers make sense in the context of the problem. For instance, if you find the angle measures of a triangle, and they have a sum that is not equal to 180º, then you should check your work for mistakes.

1.2 Lesson

Core Vocabulary

- Procedural Fluency
- Conceptual Understanding
- Inverse Operations
- Mean

1.2 What You Will Learn

- Solve multi-step linear equations using inverse operations.
- Use multi-step linear equations to solve real-life problems.
- Use unit analysis to model real-life problems.

Solving Multi-Step Linear Equations

Core Concept

Solving Multi-Step Equations

To solve a multi-step equation, simplify each side of the equation, if necessary. Then use inverse operations to isolate the variable.

Solving Real-Life Problems

Example 1: Modeling with Mathematics

Use the table to find the number of miles \( x \) you need to bike on Friday so that the mean number of miles biked per day is 5.

<table>
<thead>
<tr>
<th>Day</th>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>3.5</td>
</tr>
<tr>
<td>Tuesday</td>
<td>5.5</td>
</tr>
<tr>
<td>Wednesday</td>
<td>0</td>
</tr>
<tr>
<td>Thursday</td>
<td>5</td>
</tr>
<tr>
<td>Friday</td>
<td>( x )</td>
</tr>
</tbody>
</table>

Solution

1. Understand the Problem: You know how many miles you biked Monday through Thursday. You are asked to find the number of miles you need to bike on Friday so that the mean number of miles biked per day is 5.

2. Make a Plan: Use the definition of mean to write an equation that represents the problem. Then solve the equation.

3. Solve the Problem: The mean of a data set is the sum of the data divided by the number of data values.

\[
\frac{3.5 + 5.5 + 0 + 5 + x}{5} = 5
\]

Write the equation.

\[
\frac{14 + x}{5} = 5
\]

Combine like terms.

\[
5 \cdot \frac{14 + x}{5} = 5 \cdot 5
\]

Multiply each side by 5.

\[
14 + x = 25
\]

Simplify.

\[
14 + x - 14 = 25 - 14
\]

Subtract 14 from each side.

\[
x = 11
\]

Simplify.

You need to bike 11 miles on Friday.

Real-life applications provide students with opportunities to connect classroom lessons to realistic scenarios.
**Dynamic Classroom**

The **Dynamic Classroom** is an online interactive version of the Teaching Edition. Teachers can present their lessons and can access all of the online resources available that supplement every section of the **Big Ideas Math** program at point of use.

**Dynamic Student Edition eBook App**

The **Dynamic Student Edition eBook App** is a complete electronic version of the Student Edition that includes interactive digital resources. This app allows students to navigate through the book, highlight important information, and add notes or bookmarks. With a data or internet connection, students can access embedded, digital enhancements.

**Dynamic Investigations**

Teachers and students can integrate the **Dynamic Investigations** in the **Big Ideas Math** program into their discovery learning to interact with the Explorations in the Student Edition.
Real-Life STEM Videos

Every chapter in the Big Ideas Math program contains a Real-Life STEM Video allowing students to further engage with mathematical concepts. Students learn about the Parthenon, natural disasters, solar power, and more!

Dynamic Teaching Tools

These tools feature the Interactive Whiteboard Lesson Library. Teachers can present any Big Ideas Math lesson from an interactive whiteboard. Standard whiteboard lessons and customizable templates are included. The Interactive Whiteboard Lessons are compatible with SMART®, Promethean®, and Mimio® technology.

Dynamic Assessment System

The Dynamic Assessment System allows teachers to track and evaluate their students’ advancement through the curriculum. Developed exclusively for Big Ideas Math, this technology provides teachers and students an intuitive and state-of-the-art tool to help students effectively learn mathematics. Built for ease of use, the tool is available on a wide range of devices.
Homework and Assessment

- Includes multiple, customizable assignments for each chapter
- Allows teachers to assign homework and assessments for the entire class or a select group of students
- Offers progress monitoring assessments for an adaptive testing experience

Direct Ties to Remediation

- Includes direct links to Lesson Tutorial Videos and relevant lesson sections
- Allows students to access live chat tutors for selected exercises

All-In-One Reporting

- Offers real-time reporting at both the class and student levels
- Tracks progress through Assignment Performance and Remediation reports
Assessment Delivery
- Provides embedded tools for students
- Includes auto-scored technology-enhanced items such as drag and drop, graphing, point plotting, multiple select and fill in the blank using math expressions
- Allows teachers to include reminders or notes to students

Intuitive Design
- Operates on a wide range of devices with large and clear icons for visibility
- Allows for multiple reporting views through toggle options
- Includes intelligent presets and easy navigation
Continuous Preparation for High-Stakes Testing

Each chapter of the *Big Ideas Math* program utilizes question types frequently found on standardized tests. The balanced approach to instruction also helps students develop the habits of mind required to be successful on high-stakes tests.

### Exercises

The Exercises in the *Big Ideas Math* program provide students with opportunities to use multiple approaches to solve problems.

### Dynamic Assessment System

This tool allows teachers to provide customizable homework directly related to the *Big Ideas Math* program. Assignments are automatically scored and students have access to immediate remediation on homework questions.

### Explorations

The Explorations that begin each section require students to use higher-level thinking to work through each problem and to explain their reasoning in the solution.

### Cumulative Assessments

Each chapter in the *Big Ideas Math* program includes a Cumulative Assessment. The questions in each assessment were carefully chosen to represent problem types and reasoning patterns frequently found on standardized tests.

### Quizzes and Tests

The Quizzes and Tests in the *Big Ideas Math* program assess the concepts students learned in each lesson.

### Online Test Practice

Self-grading tests are available online, allowing students to receive immediate feedback on their progress.

### Performance Tasks

Each chapter of the *Big Ideas Math* program contains a Performance Task in the Assessment Book and an online Performance Task that correlates to the STEM video of the chapter. Each Performance Task allows students to work with multiple standards.

### Alternative Assessments

Alternative Assessments provide teachers with the opportunity to assess students on the same content in a variety of ways.
The Student Edition was designed using the Universal Design for Learning Guidelines (CAST © 2011) and features carefully chosen images that increase student engagement and enhance the mathematical content.

The Teaching Edition provides teachers with complete support for every Big Ideas Math lesson. Master Educator Laurie Boswell incorporates instructional insights and recommendations in Laurie’s Notes.

This consumable workbook serves as a valuable resource where students can solve extra practice problems, take notes, and internalize new concepts by expressing their findings in their own words.

By the end of this exploration, students should be able to:
- Identify the range of possible values for the unknown variable.
- Understand how the relationship between the variables affects the outcome.
- Apply these concepts to solve real-world problems.

Resource by Chapter
- Start Thinking
- Warm Up
- Cumulative Review Warm Up
- Extra Practice (Practice A and B)
- Enrichment and Extension
- Puzzle Time
- Family Communication Letters

Available in English and Spanish

All print components are also available online.
Visit bigideaslearning.com for more information about the Big Ideas Math: A Bridge to Success High School program.

To obtain pricing information or to place an order, please contact your Houghton Mifflin Harcourt™ Account Executive or call 800.225.5425.