Mc Graw Hill Education

OKLAHOMA

ALGEBRA 1

Program Overview + Digital Sampler

mheonline.com/Oklahoma

Program Overview + Digital Sampler

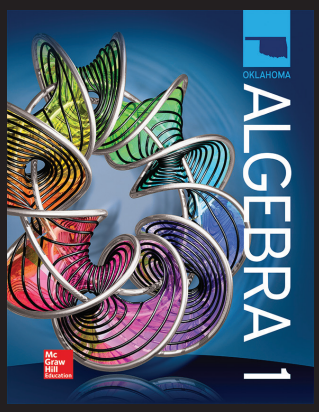
Connecting math content, rigor, and adaptive instruction for student success.

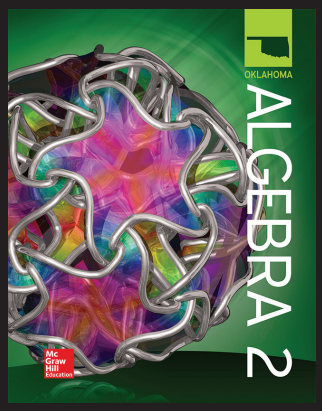
Oklahoma Glencoe High School Math Series

The accelerated pace of change in education over the last few years has created acute shifts in the delivery, consumption, and evaluation of mathematics education. As a result, educators need relevant content in multiple formats to engage students and focus on developing skills leading to achievement in the classroom and in the real-world.

Helping educators immerse students in math and prepare them for the future is what McGraw-Hill Education is all about. We deliver the most effective, innovative, and inspiring learning experiences for high school mathematics.

Featuring Three Math Programs





The *Oklahoma Glencoe High School Math Series* includes: Algebra 1, Geometry, and Algebra 2. The series includes everything you need to guide your students with materials that lead them to success in the classroom, and creates confidence in their future.

CONTENTS

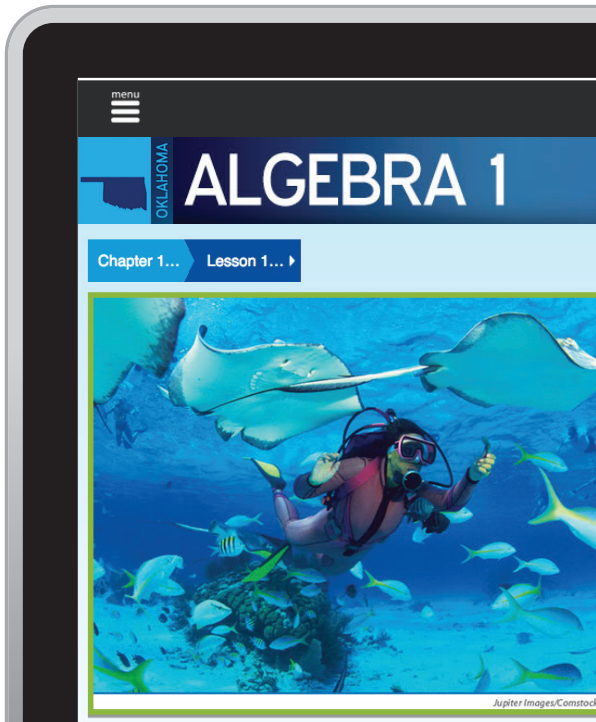
Connect Math, Rigor, and Standards Practice

Students' math abilities are as diverse as they are. Help them develop confidence with appropriately challenging math content.

As your partner in providing an effective learning environment for your students, our trusted content combined with diverse resources focused on Oklahoma Academic Standards for Mathematics, challenge and develop students' critical thinking skills to provide learners with a deeper understanding and broader knowledge of math.

Connect math in and outside your classroom using:

- **Student eBook** available in desktop and mobile versions for ease of use, anytime, anywhere.
- **Oklahoma Interactive Student Guide** to help develop students' conceptual understanding of mathematics.
- **Chapter Projects** to develop students' 21st century research skills.
- ***ALEKS***® to experience adaptive learning technology that meets your students where they are academically to move them to where they need to go.

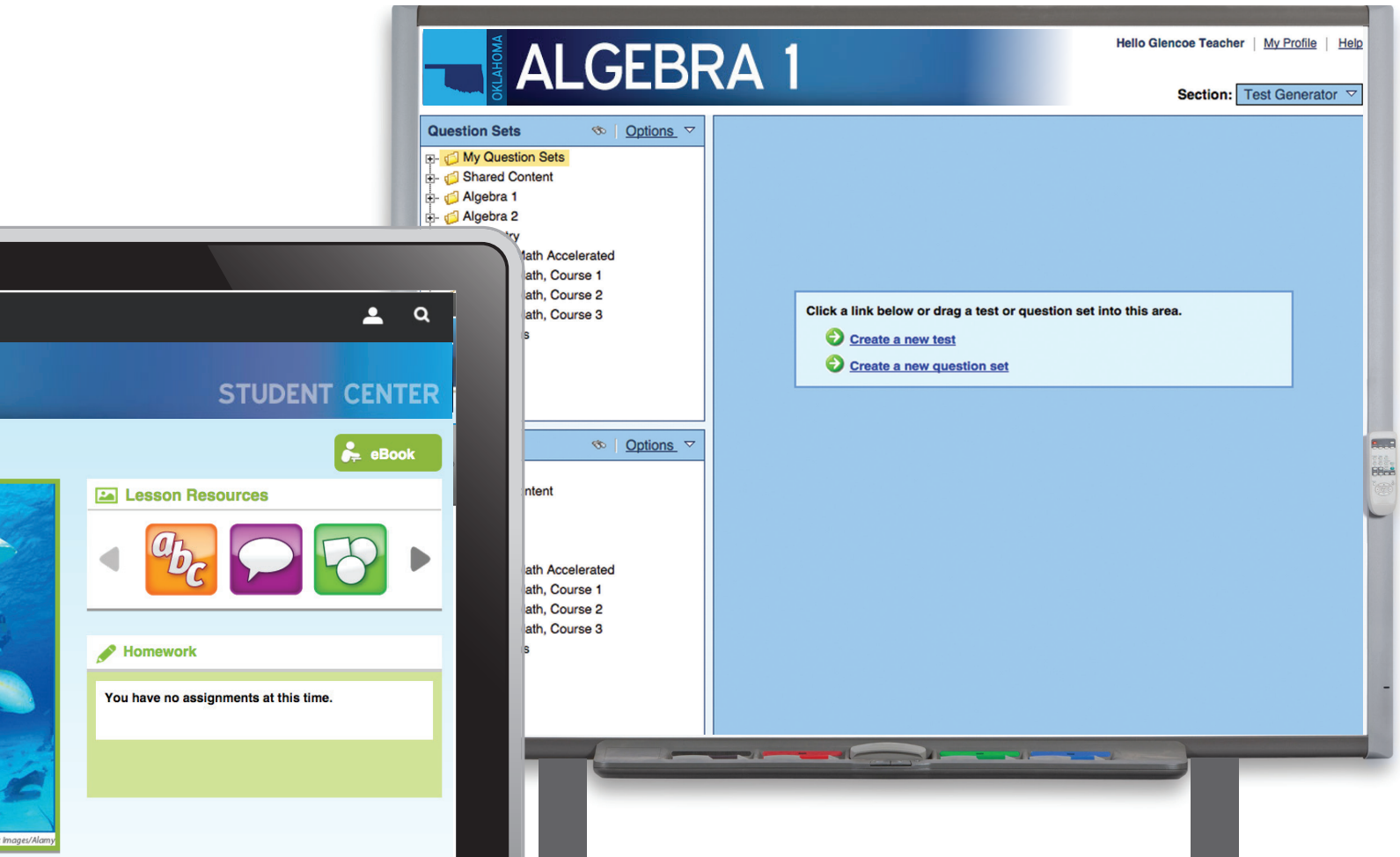


Ensure Your Students are Ready for the Oklahoma Standards

Interactive and customizable, the resources built into your *Oklahoma Glencoe High School Math Series* give you access to all the tools necessary to develop students' next generation problem-solving skills and facilitate an enhanced understanding of new topics.

Help students increase their comfort level with new content as well as mathematics concepts and application with these innovative learning tools:

- McGraw-Hill Education **eLessons** projected on an interactive whiteboard as an in-class presentation tool to help students visualize math concepts.
- **eSolutions** to provide quick and efficient access to questions that reinforce lesson content.
- Our online **eAssessment** system presents you with practice questions to familiarize students for new assessments.



Bring Math to Life

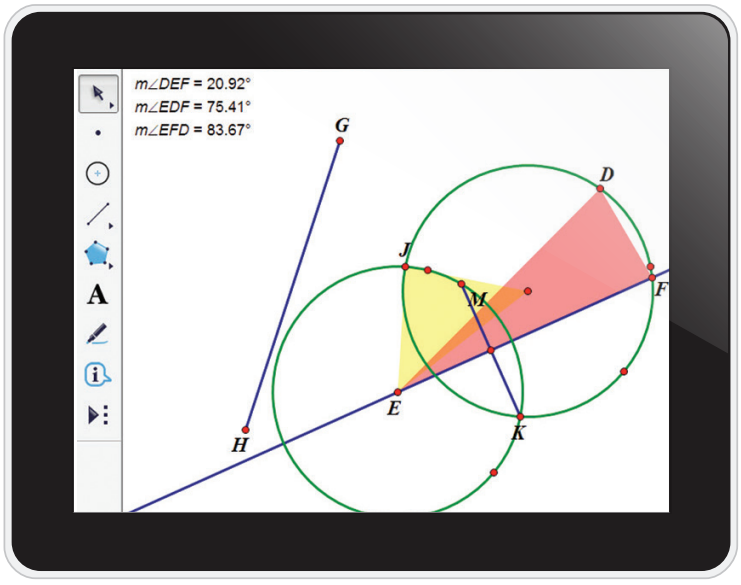
With the *Oklahoma Glencoe High School Math Series* digital resources in ConnectED, you can create an interactive learning center and empower students to live the math through exploration and investigation!

Draw out your students' excitement for math with *The Geometer's Sketchpad*®

This interactive learning tool challenges students to drag, sketch, and model activities to deepen their conceptual understanding and application of abstract math concepts.

Integrated at the lesson level are engaging exercises that increase comprehension of abstract math concepts by helping students:

- Formalize key concepts.
- Test mathematical hypothesis.
- Visualize abstract math concepts.



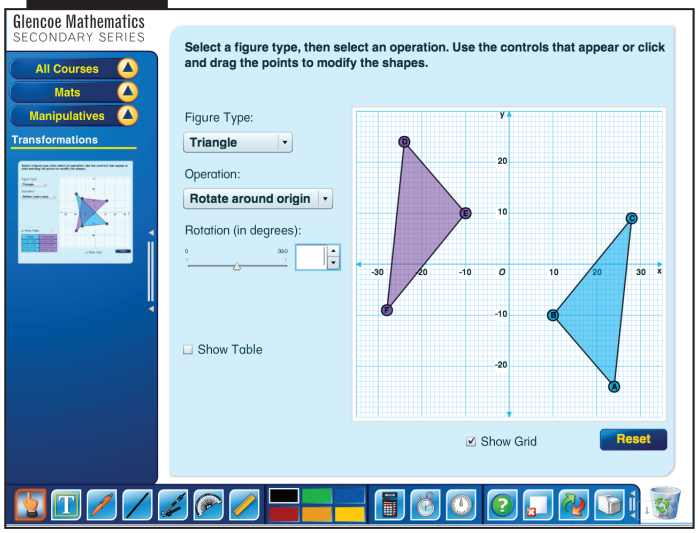
THE GEOMETER'S SKETCHPAD®

Interactive Resources to Extend Learning

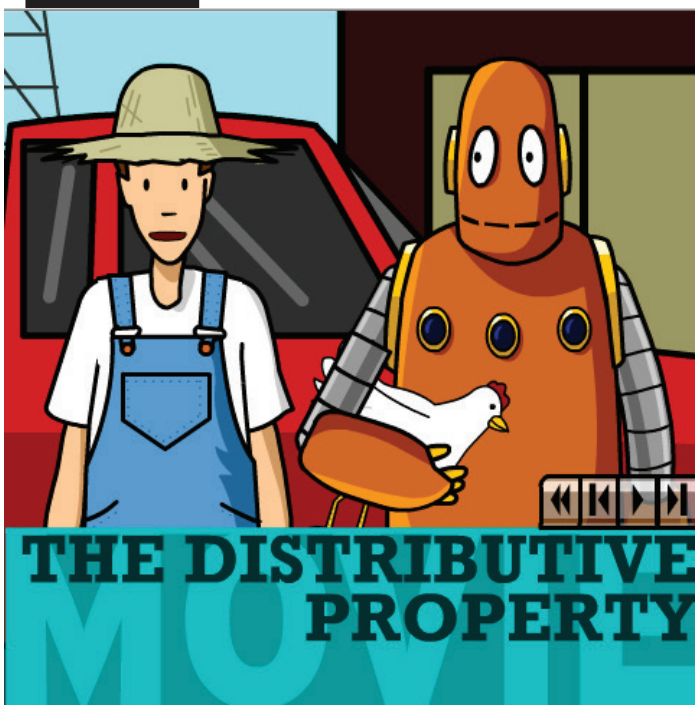
Help students deepen their understanding of math with truly interactive resources.

The **eToolkit** virtual manipulatives empowers students to take learning into their own hands with opportunities to modify concrete models and see how changes they make impact the formula.

eToolkit



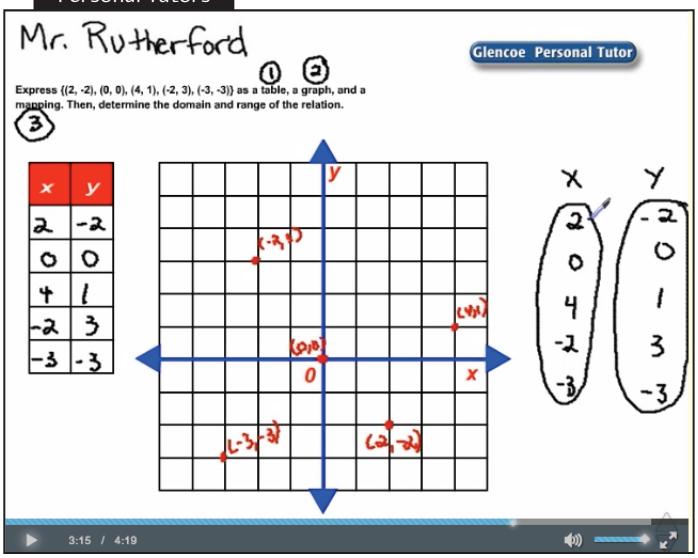
BrainPOP®



BrainPOP® supports individual and whole-class learning with animations that provide clear and concise explanations of select topics. Students can't help but be drawn in and you are fully supported with a variety of resources at your fingertips.

Personal Tutors are embedded and available to students at point-of-use to explain math concepts and help them apply or review lesson material.

Personal Tutors



Drive Student Success

Oklahoma Glencoe High School Math Series is designed for the success of math students at all levels. With adaptive and personalized instructional tools built into the program, you can take command, make data-informed decisions, and provide the individualized instruction each student needs.

Differentiation Support That Adds Up

Confidently tailor your instruction with comprehensive materials to meet the individual learning needs of every student. Use the 3-Tier RtI model, fully supported by your *Oklahoma Glencoe High School Math Series* to reach every student.

Spark excitement about the impact of math in the real world using these **Differentiated Instruction** resources:

- Recommendations to personalize instruction for every student.
- Leveled exercise sets, reference resources, and dynamic digital tools.
- Differentiated homework options.

TIER 1 On Level OL

IF students miss 25% of the exercises or less,

THEN choose a resource:

SE Lessons 5-1, 5-2, and 5-3

Go Online!

- Skills Practice
- Chapter Project
- Self-Check Quizzes

TIER 2 Strategic Intervention AL
Approaching grade level

IF students miss 50% of the exercises,

THEN choose a resource:

Quick Review Math Handbook

Go Online!

- Study Guide and Intervention
- Extra Examples
- Personal Tutors
- Homework Help

TIER 3 Intensive Intervention
2 or more grades below level

IF students miss 75% of the exercises,

THEN choose a resource:

Use *Math Triumphs, Alg. 1*

Go Online!

- Extra Examples
- Personal Tutors
- Homework Help
- Review Vocabulary

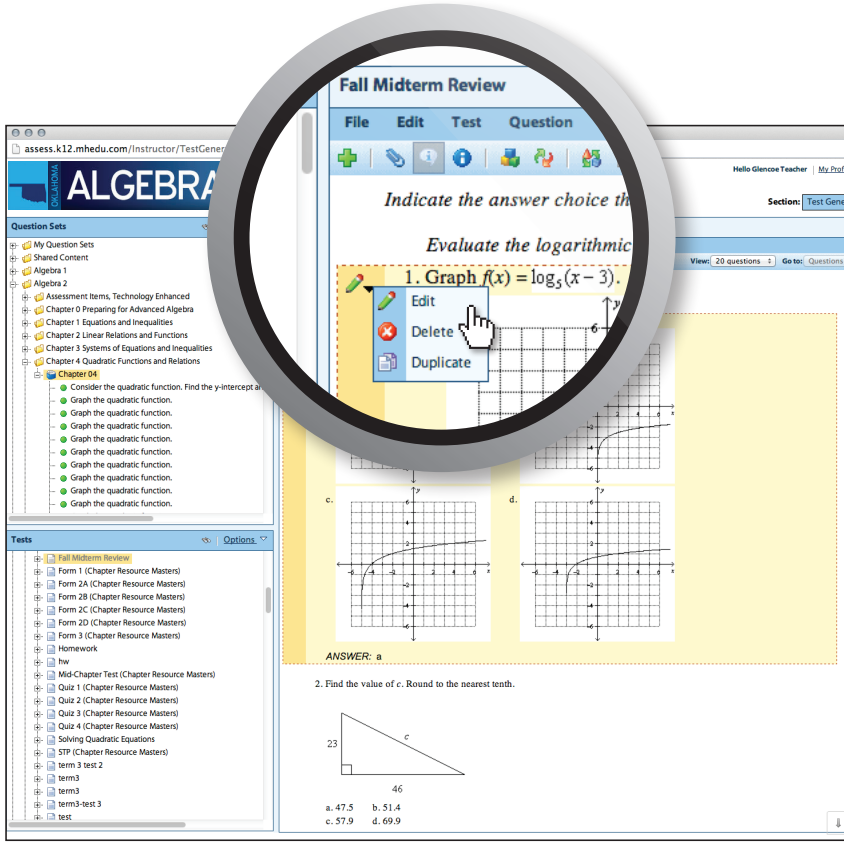
Trust *ALEKS*® to make informed instructional decisions.

With the purchase of *ALEKS*, you are enabled to find out where your students are to inform your decisions on where whole-class instruction begins. This adaptive, personalized learning solution uses artificial intelligence to predict what content students are ready to learn and easily target individualized instruction, remediation, and acceleration.

Use precise and customized tests with eAssessment.

The simple and intuitive **eAssessment** interface makes it easy to create customized assessments, schedule homework, receive immediate results, and generate student proficiency reports.

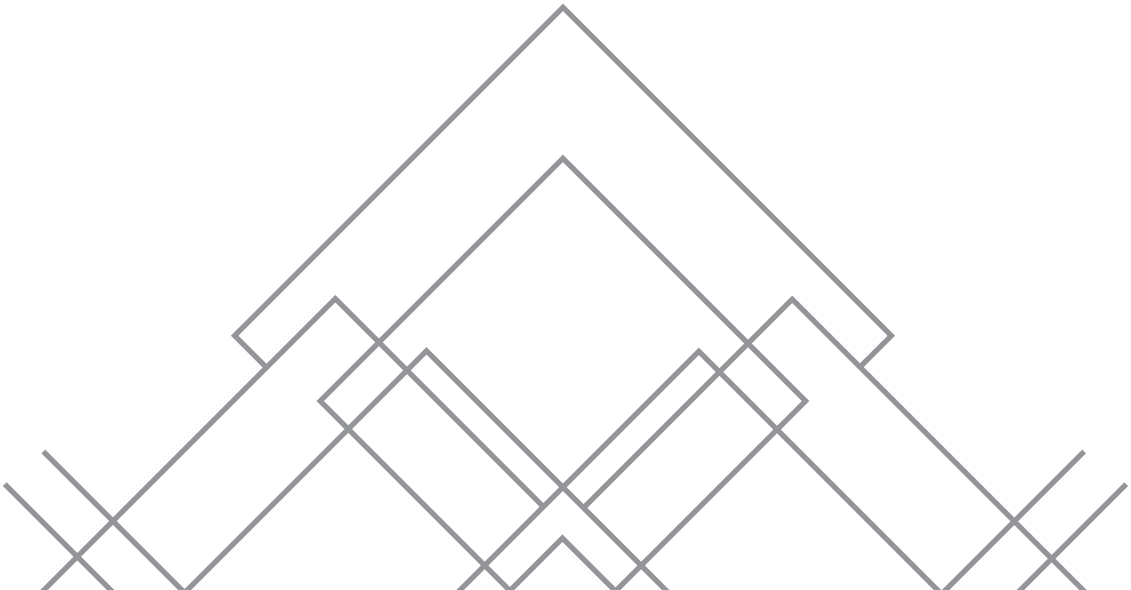
Effectively and immediately provide support to improve achievement for every student.



Digital Resources Guide

With the *Oklahoma Glencoe High School Math Series*, you'll be impressed with the breadth of digital resources you have access to with just a few clicks. Use this Digital Resources Guide to preview many of the robust technology tools your *Oklahoma Glencoe High School Math* program has to offer.

As you explore your math program, be sure to look for engaging animations and videos that make learning effortless. Interactive graphing and modeling tools reinforce understanding and build confidence. These are some of the many resources that make it easy for you to meet your classroom goals.



ConnectED

Your Digital Dashboard

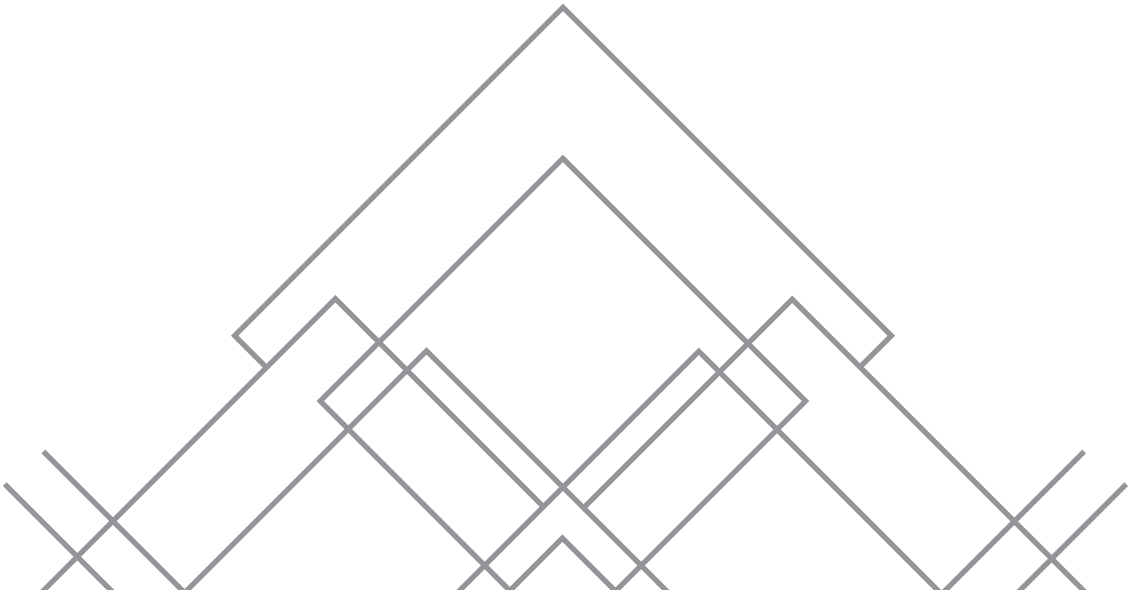
Maximize your planning time with convenient, easy-to-use tools and teaching resources using the **ConnectED** online dashboard from any computer, anytime.

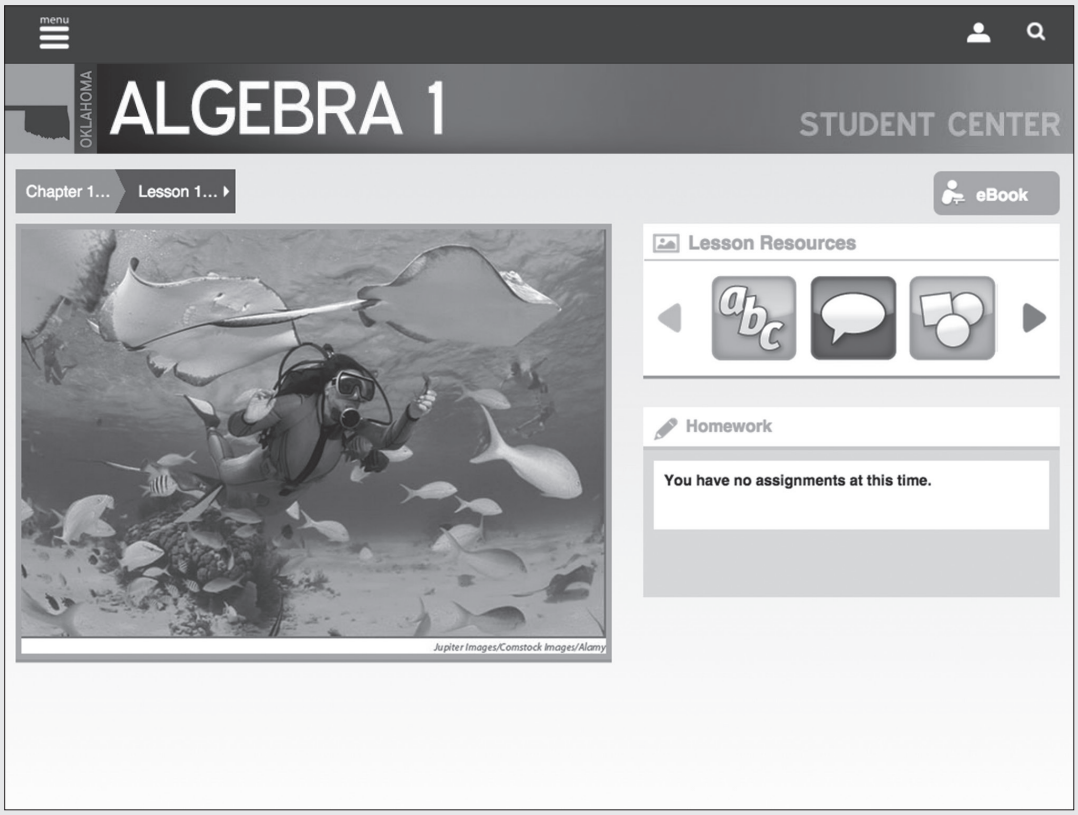
Access and customize videos, worksheets, and presentations to help you meet each student's diverse learning needs.

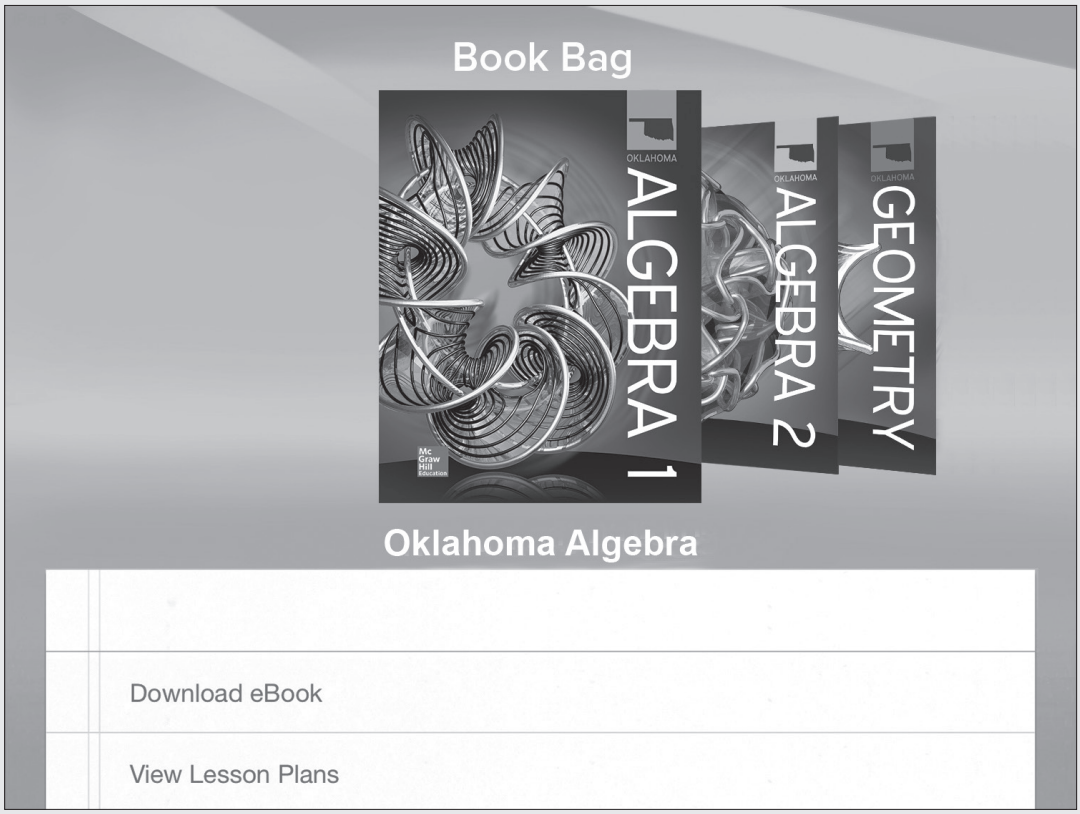
Use the calendar function to schedule student assignments and the Message Center to alert students of new assignments. End of chapter online assessments help you evaluate student's knowledge frequently and differentiate appropriately.

Students have their own online learning dashboard, ConnectED Student Center. Learning is enhanced for students using the ConnectED Student Center with access to a wide-range of helpful resources such as Personal Tutors and downloadable eBook.

Using the Message Center, students can interact with you to ask questions, make notes, complete assignments, and submit work assignments. **ConnectED Mobile App** gives you access anytime, anywhere.







ConnectED and ConnectED Mobile

Planning & Presentation Resources

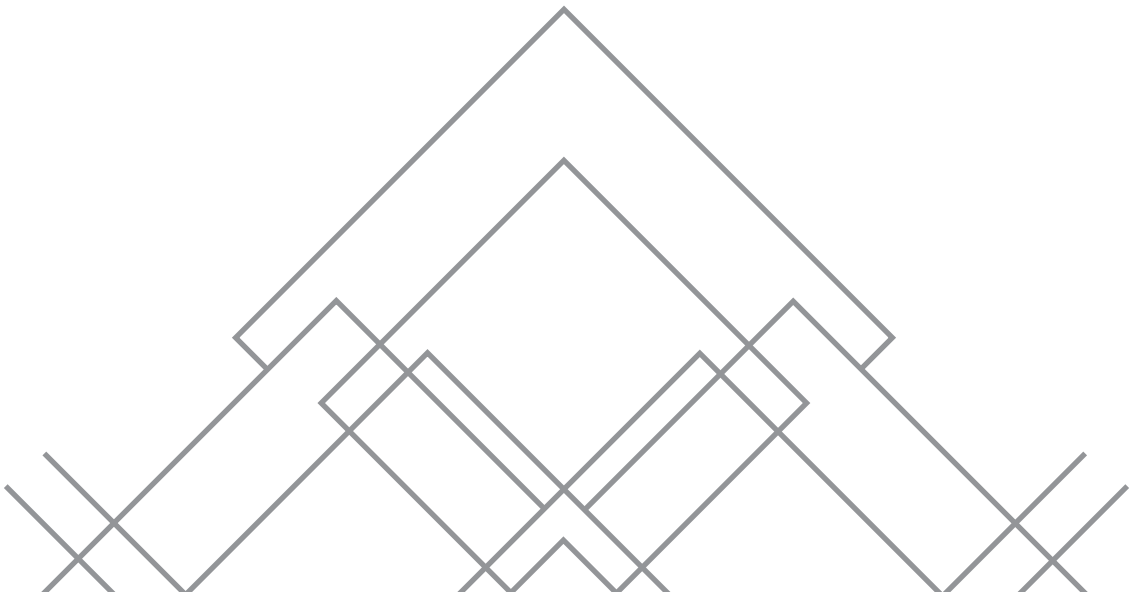
Prep, Plan, and Present

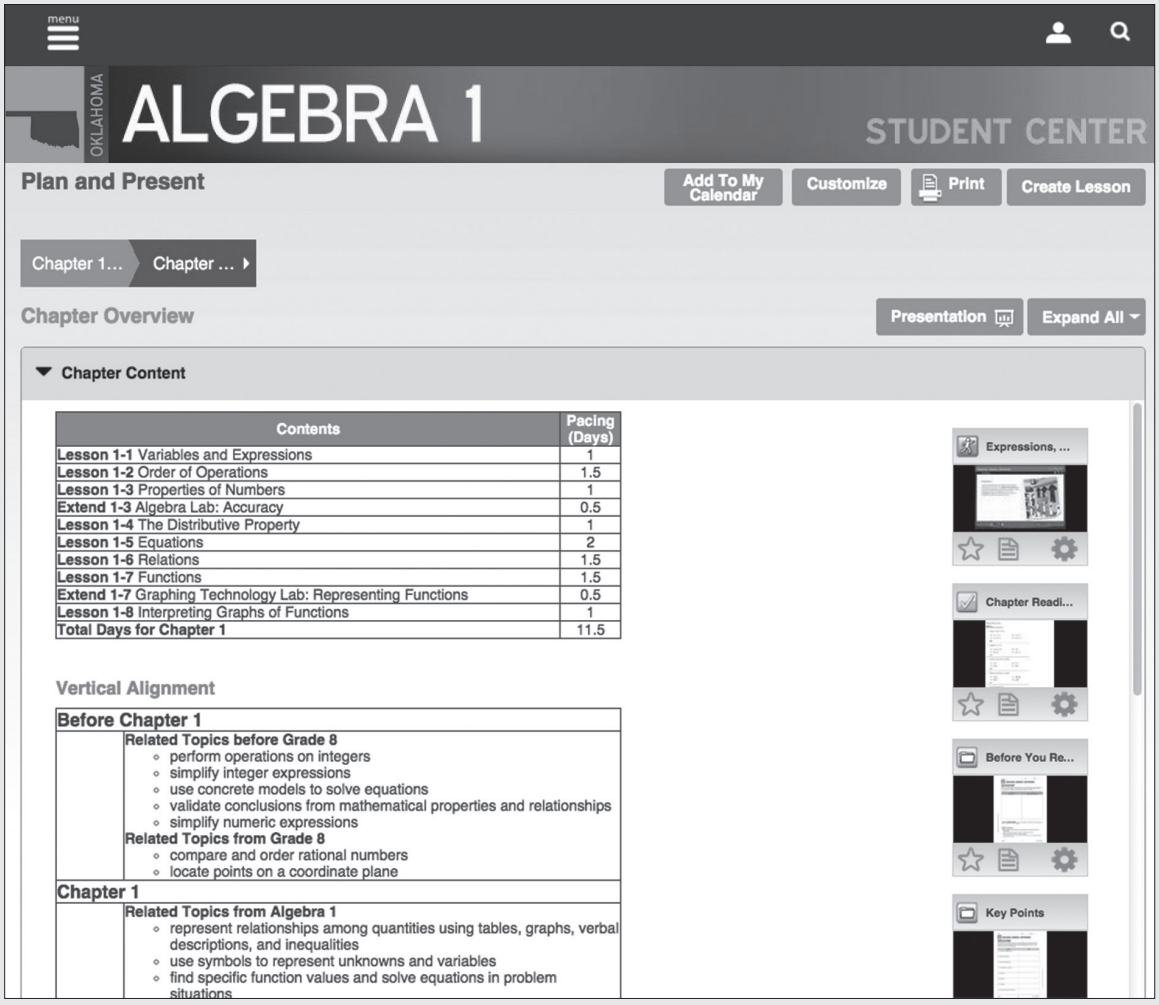
Create memorable learning experiences for your students using vital resources to prepare, plan, and present engaging lessons every day.

Use the lesson overview to review objectives, and Oklahoma Academic Standards for Mathematics for each chapter to increase the time you have to focus on instruction.

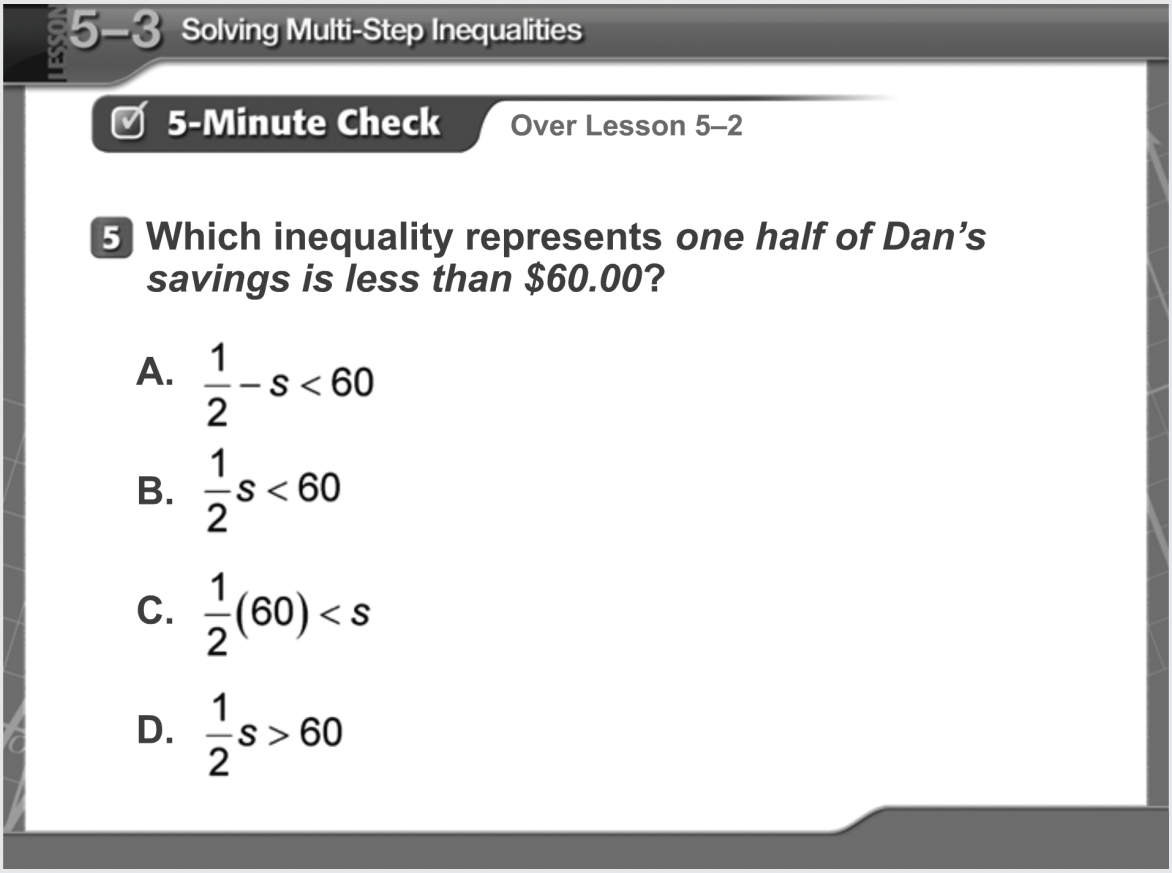
Choose pre-built lesson plans or customize with videos, animations, and online activities to create interactive learning opportunities in various modalities to accommodate your students' diverse learning styles and personalities.

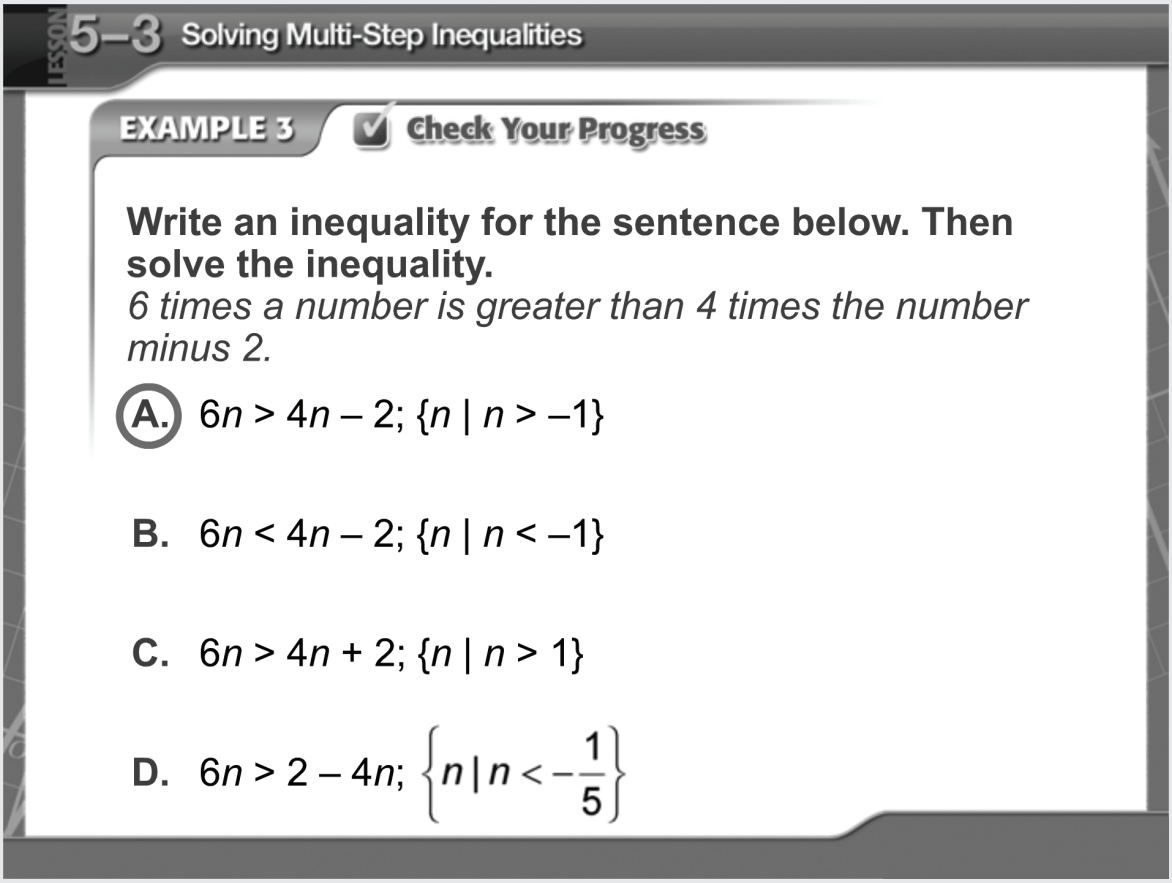
Each lesson includes scaffolding questions and digital integration suggestions to help you incorporate technology at your comfort level.





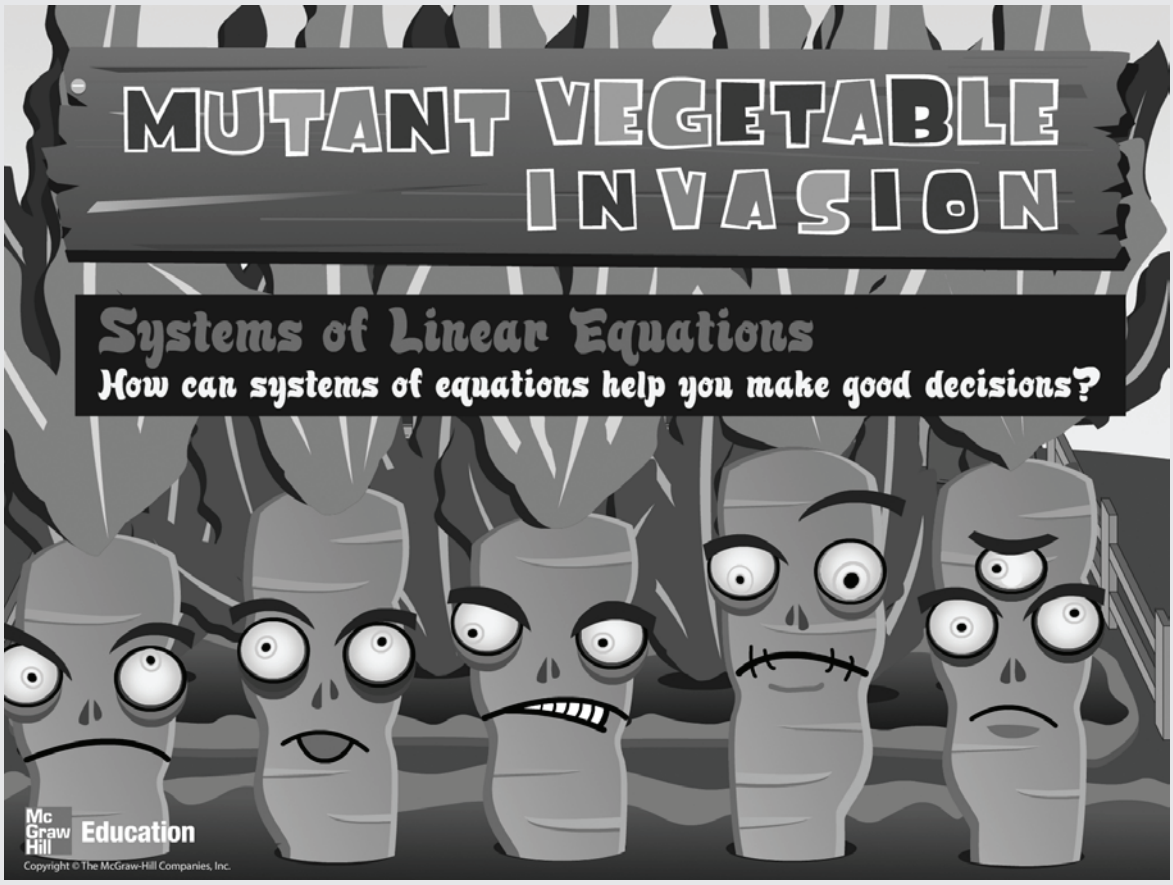
Plan and Present





Interactive Classroom

Interactive whiteboard ready presentation for the lessons.



HOW can you use systems of equations to solve a problem?

To launch an invasion, you need a total of exactly 40 plants. If you want to spend all of your gold nuggets, how many tomato plants and corn plants should you buy?

Current Farm Status

Total number of plants on farm: 0

Supply of gold nuggets: 1500

SYSTEMS OF LINEAR EQUATIONS

eLessons

Lessons containing interactive content, animations, and games.

Adaptive Technology

Learnsmart®

Personalized Study Resources

LearnSmart provides adaptive, online practice on course topics that students will encounter on high-stakes assessments. By following a personalized study plan, each student will have visibility to topics they have mastered--as well as those that need refreshed. This valuable resource helps students and teachers maximize the time leading up to end-of-course or high-stakes assessments.

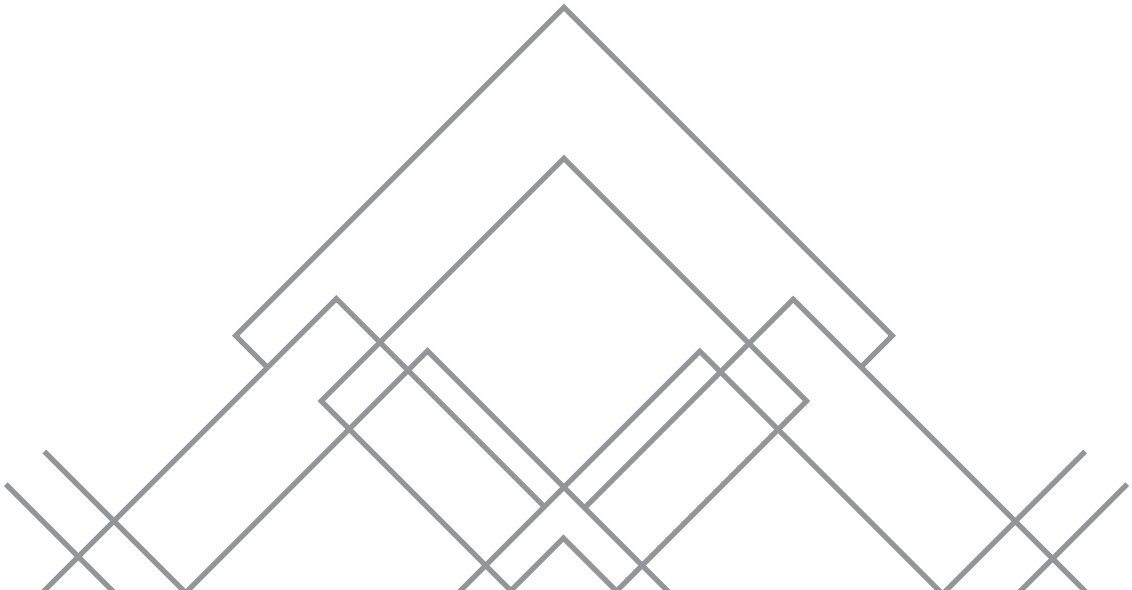
ALEKS®

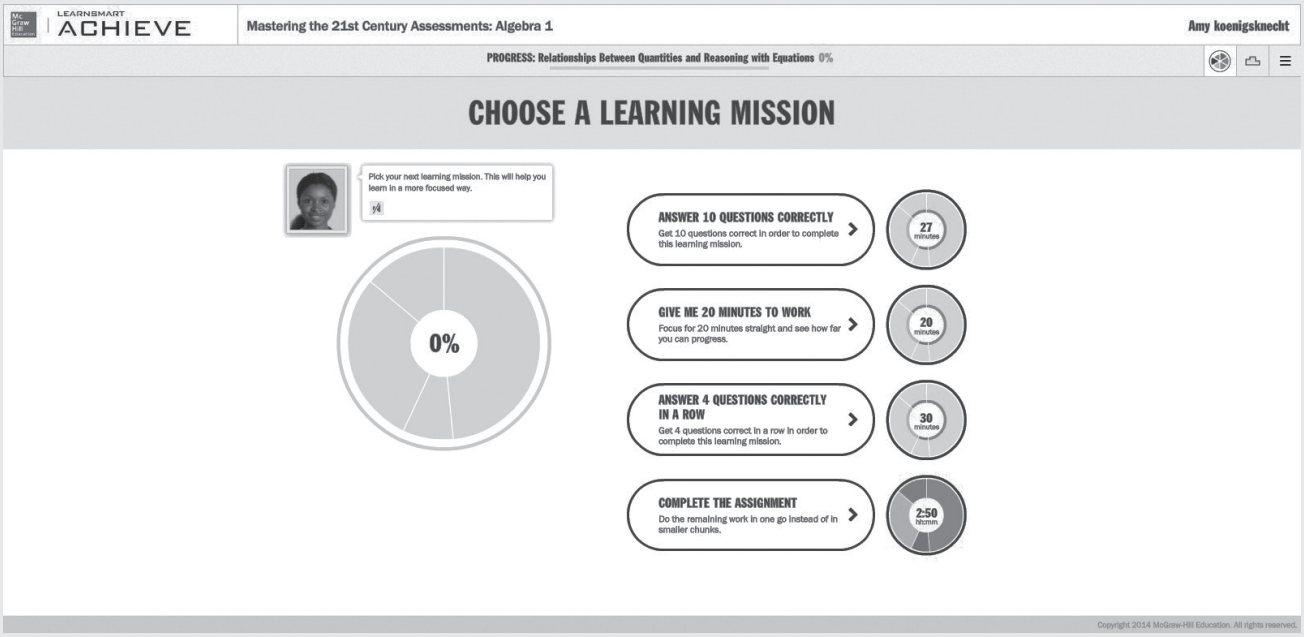
Adaptive Technology for Students

Deliver a personalized learning path for every student in you classroom. An adaptive learning system, *ALEKS®* adjusts its presentation of content for each student based upon their demonstrated interaction with math content.

ALEKS® delivers periodic assessments with open-ended questions to continuously determine content each student is ready to learn. *ALEKS®* then presents content the student is ready to learn and helps advance students at their own pace.

ALEKS® powerful reporting tools help you identify students who need one-on-one instruction and additional practice. *ALEKS®* empowers you to adjust your classroom needs by providing you with real-time data. Create custom reports on student progress, mastery, and time on task.




LEARNSMART ACHIEVE
Mastering the 21st Century Assessments: Algebra 1
Amy koenigsknecht
PROGRESS: Relationships Between Quantities and Reasoning with Equations 0%
CHOOSE A LEARNING MISSION
Pick your next learning mission. This will help you learn in a more focused way.
0%
ANSWER 10 QUESTIONS CORRECTLY
Get 10 questions correct in order to complete this learning mission.
27 minutes
GIVE ME 20 MINUTES TO WORK
Focus for 20 minutes straight and see how far you can progress.
20 minutes
ANSWER 4 QUESTIONS CORRECTLY IN A ROW
Get 4 questions correct in a row in order to complete this learning mission.
30 minutes
COMPLETE THE ASSIGNMENT
Do the remaining work in one go instead of in smaller chunks.
2:50 hh:mm
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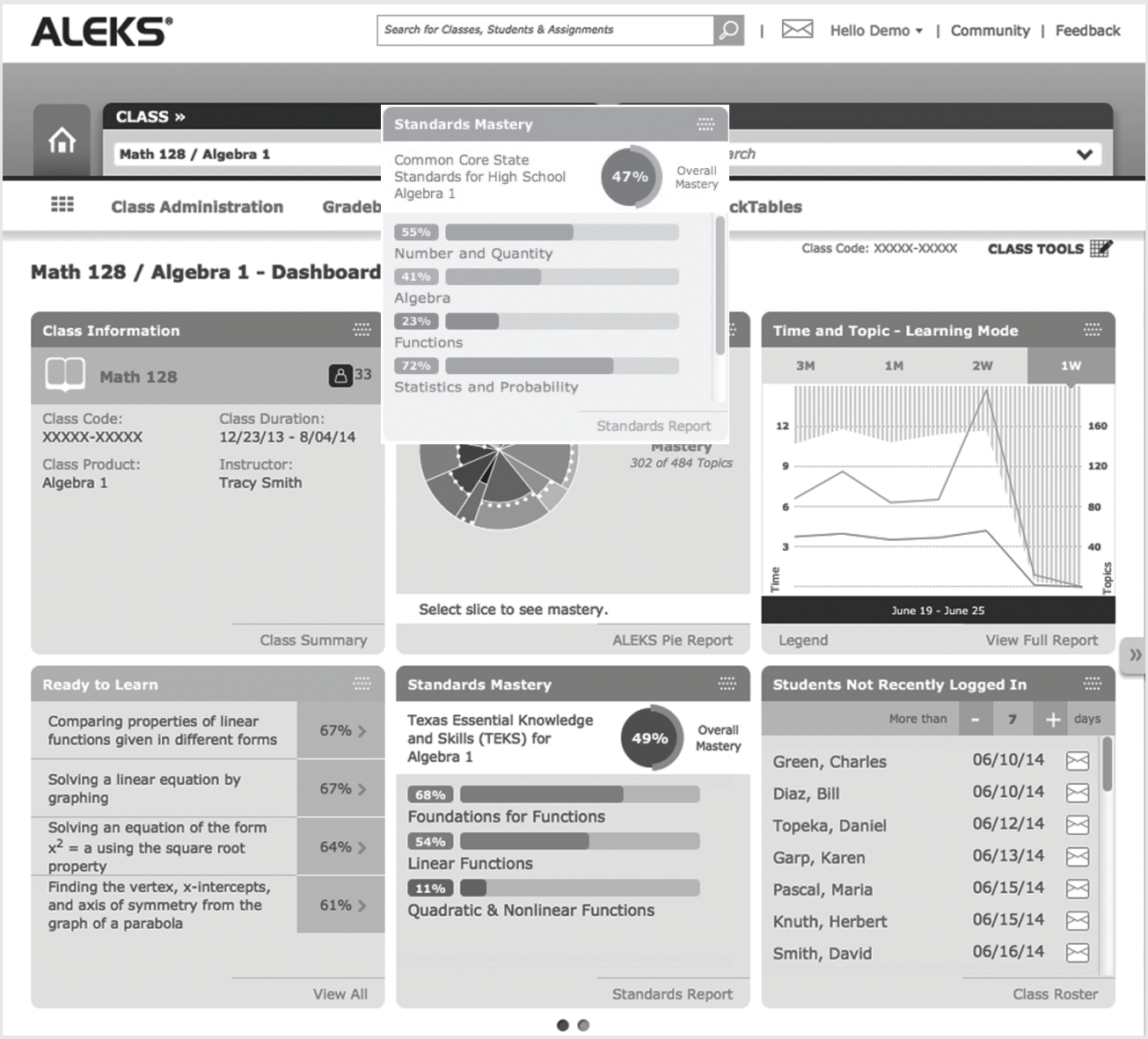

ALEKS
Search for Classes, Students & Assignments
Hello Demo
Community
Feedback
CLASS »
Math 128 / Algebra 1
Class Administration
Standards Mastery
Common Core State Standards for High School Algebra 1
47%
Overall Mastery
55% Number and Quantity
41% Algebra
23% Functions
72% Statistics and Probability
Standards Report
Class Code: XXXXX-XXXXX
CLASS TOOLS
Math 128 / Algebra 1 - Dashboard
Class Information
Math 128
33
Class Code: XXXXX-XXXXX
Class Duration: 12/23/13 - 8/04/14
Class Product: Algebra 1
Instructor: Tracy Smith
Class Summary
Mastery
302 of 484 Topics
Select slice to see mastery.
ALEKS Pie Report
Time and Topic - Learning Mode
3M
1M
2W
1W
12
9
6
3
160
120
80
40
Time
Topics
June 19 - June 25
Legend
View Full Report
Ready to Learn
Comparing properties of linear functions given in different forms 67%
Solving a linear equation by graphing 67%
Solving an equation of the form x2 = a using the square root property 64%
Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola 61%
View All
Standards Mastery
Texas Essential Knowledge and Skills (TEKS) for Algebra 1
49%
Overall Mastery
68% Foundations for Functions
54% Linear Functions
11% Quadratic & Nonlinear Functions
Standards Report
Students Not Recently Logged In
More than - 7 + days
Green, Charles 06/10/14
Diaz, Bill 06/10/14
Topeka, Daniel 06/12/14
Garp, Karen 06/13/14
Pascal, Maria 06/15/14
Knuth, Herbert 06/15/14
Smith, David 06/16/14
Class Roster

Chapter-Level Resources

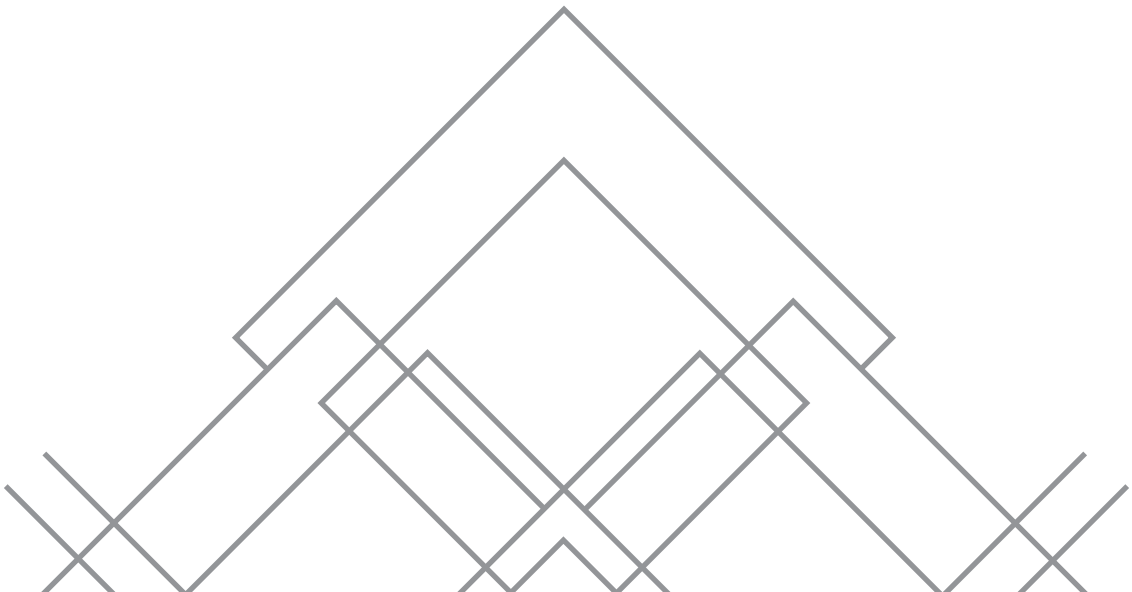
All the Resources for All the Chapters

Each chapter has resources to help you assess students' prior knowledge, preview chapter content, and tie it all together for your students.

Chapter-Level resources to engage students and assist you in leading the classroom include:

- Quizzes
- Worksheets
- Graphic novels
- Chapter projects

Help students prepare for future lessons with the Study Notebook. Students can organize notes and use the glossary worksheet to record and study chapter vocabulary. Use the Anticipation Guide to evaluate concepts students know about the subject.



Chapter Readiness Quiz

Chapter 5
Linear Inequalities

1. Solve $x + 5 = -7$.

   A. $x = 2$
   B. $x = 35$
   C. $x = -2$
   D. $x = -12$

   Hint

---

2. Solve $-198 = -11x$.

   A. $x = -18$
   B. $x = 18$
   C. $x = 187$
   D. $x = -187$

   Hint

---

3. Solve $\frac{3}{5}q = 21$.

   A. $q = \frac{63}{5}$
   B. $q = 21$
   C. $q = 35$
   D. $q = 105$

   Hint

---

4. Evaluate: $\frac{x^3 - y^3}{z}$ when $x = 3$, $y = 2$, and $z = 19$.

   A. $\frac{1}{19}$
   B. 19
   C. 2
   D. 1

   Hint

---

5. Find the area of the figure if $a = 3$ and $b = 5$.

Chapter Readiness Quiz

Chapter Readiness Quizzes help students assess their knowledge of prerequisite skills for each chapter.

NAME _____ DATE _____ PERIOD _____

CHAPTER 5

Linear Inequalities

Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Linear Inequalities
	• Inequalities are solved by isolating the variable.
	• If both sides of an inequality are multiplied by a negative number, the inequality sign is reversed.
	• A graph of an inequality has an open circle when the symbol is "greater than or equal to".
	• The order of operations does not apply when solving inequalities.
	• Inequalities with absolute values are undefined.

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **Remember to study your notes daily.**
  Reviewing small amounts at a time will help you retain the information.
- **When you take notes, it may be helpful to sit as close as possible to the front of the class.**
  There are fewer distractions and it is easier to hear.

Before Your Read

The Study Notebook Worksheet helps students organize their notes for understanding and quick retrieval of information.

NAME _____ DATE _____ PERIOD _____

CHAPTER 5

Linear Inequalities

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on solving inequalities by addition and subtraction, one fact might be that when solving inequalities, the goal is to isolate the variable on one side of the inequality. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
5-1 Solving Inequalities by Addition and Subtraction	
5-2 Solving Inequalities by Multiplication and Division	
5-3 Solving Multi-Step Inequalities	
5-4 Solving Compound Inequalities	
5-5 Inequalities Involving Absolute Value	
5-6 Graphing Inequalities in Two Variables	

Key Points

The Study Notebook Worksheet helps students organize their notes for understanding and quick retrieval of information.

NAME _____ DATE _____ PERIOD _____

5 Student-Built Glossary

This is an alphabetical list of the key vocabulary terms you will learn in Chapter 5. As you study the chapter, complete each term's definition or description. Remember to add the page number where you found the term. Add these pages to your Algebra Study Notebook to review vocabulary at the end of the chapter.

Vocabulary Term	Found on Page	Definition/Description/Example
boundary		
closed half-plane		
compound inequality		
half-plane		
intersection		
open half-plane		
set-builder notation		
union		

Student Built Glossary

The Student Built Glossary Worksheet provides a list of new vocabulary terms from the chapter. Students record definitions and/or examples for each term.

NAME _____ DATE _____ PERIOD _____

5 Anticipation Guide
Linear Inequalities

Step 1: ***Before you begin Chapter 5***

- Read each statement.
- Decide whether you Agree (A) or Disagree (D) with the statement.
- Write A or D in the first column OR if you are not sure whether you agree or disagree, write NS (Not Sure).

STEP 1 A, D, or NS	Statement	STEP 2 A or D
	1. According to the Addition Property of Inequalities, adding any number to each side of a true inequality will result in a true inequality.	
	2. The inequality $m + 23 \geq 35$ can be solved by adding 23 to each side.	
	3. 16 *is no greater than the difference of a number and 12* can be written as $16 \leq n - 12$.	
	4. If both sides of $\frac{r}{12} < 4$ are multiplied by 12, the result is $r < 48$.	
	5. The result of dividing both sides of the inequality $-2y \geq 10$ by -2 is $y \geq -5$.	
	6. To solve an inequality involving multiplication, such as $9t > 27$, division is used.	
	7. To solve the inequality $8x - 2 < 70$, first divide by 8 and then add 2.	
	8. A compound inequality is an inequality containing more than one variable.	
	9. On a number line, a closed dot is used for an inequality containing the symbol ≥ or ≤.	
	10. If $\|t\| < 8$, then t equals all numbers between 0 and 8.	
	11. On the graph of $y > 2x - 3$, the solution set will be all numbers above the graph of the line $y = 2x - 3$.	

Step 2: ***After you complete Chapter 5***

- Reread each statement and complete the last column by entering an A or a D.
- Did any of your opinions about the statements change from the first column?
- For those statements that you mark with a D, use a piece of paper to write an example of why you disagree.

Anticipation Guide

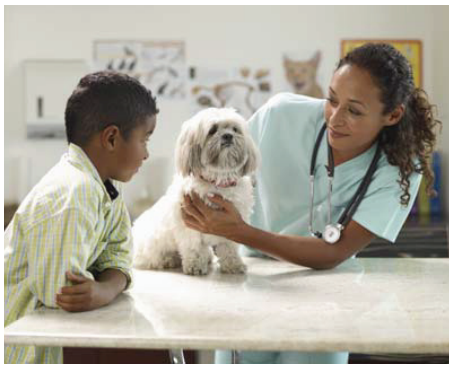
The Anticipation Guide is a survey used before beginning the chapter to pinpoint what students know about the concepts in the chapter. Students may revisit this survey after they complete the chapter to see if their perceptions have changed.

Name _____ Date _____ Period _____

Caring For Our BFFs

People love their pets; and studies have shown that owning pets can have health benefits. While many people consider pets to be members of their families, there are situations in which animals are considered better off in the care of professionals.

In this project, you will serve as a shelter operator caring for cats and dogs. You will develop a plan for maximizing the number of each type of animal that you can feed. You will also propose how donations could help your shelter feed more animals.



Fuse/Corbis/Getty Images

Research

- Research some of the job functions of a shelter operator. Explore some of the aspects of the career such as necessary and desired skills and required education.
- Research how to care for cats and dogs. How much do they eat daily? How much does cat food and dog food cost? What are their life expectancies? What other costs are involved in caring for pets? How much space is needed per animal?
- Research donations to animal shelters and other organizations. What are some of the funding sources that exist? How difficult is it to secure donations?

Select

Select two breeds of cats and two breeds of dogs.

Analyze

Analyze the costs associated with caring for the chosen cats and dogs. If there are cost differences between the types of animals, determine why.

Brainstorm

Think about how you would decide the numbers of cats and dogs you would be able to feed in your shelter. What factors should you consider?

Create

Using the Animal Care Guidelines, create a proposal for feeding the animals with a monthly food budget of $1000. Include information that can be used to show a potential donor how many more animals could be served with an increased budget.

Evaluate

When your proposal is complete, swap proposals with another student. Use the animal care guidelines to determine whether the student's proposal is valid.

Present

Valid proposals will be presented to the class and then voted on to determine the best proposal.

Chapter Project

Students use 21st century research skills and what they have learned in the chapter to complete a Chapter Project.

Name _____ Date _____ Period _____

Animal Care Guidelines

Attach these guidelines to your proposal.

1. The animals you have chosen are included. • The breeds of cats and dogs are listed. • An explanation of why those breeds were chosen is included. 2 pts: All components are included. -1 pt: for each omitted component	_____ / 2
2. The amount of food required per month for each of the four animals is provided as an inequality. For example, 25 to 35 pounds per month can be represented as $25 \leq x \leq 35$. Each inequality is graphed on a number line. 8 pts: Correct inequality and graph is included for each animal. -1 pt: for each missing inequality or graph	_____ / 8
3. The monthly cost to feed each of the four animals is attached and includes: • documentation of food costs (food brand, brand cost, etc…) • an explanation of why you chose that brand of food, and • calculations of cost. 6 pts: Documentation and explanations, are provided and calculations are correct. -2 pts: for each missing component	_____ / 6
4. The average monthly food cost per cat and per dog is included. 2 pts: for each average cost -2 pts: for each missing average cost	_____ / 4
5. An inequality in two variables is written and graphed to represent the numbers of cats and dogs that can be fed for $1000 or less per month. Use the average monthly food cost per cat and per dog. 12 pts: Inequality and graph are included and are correct. 6 pts: Inequality or graph is incorrect. 0 pts: Inequality and graph are incorrect or not included.	_____ / 12
6. A statement explaining how many cats and dogs you will be able to feed is included. 5 pts: Statement is included and is correct. 0 pt: Statement is incorrect or not included.	_____ / 5
7. An inequality that represents an increased monthly food budget is written and graphed. 8 pts: Inequality and graph are included and are correct. 4 pts: Inequality or graph is incorrect. 0 pts: Inequality and graph are incorrect or not included.	_____ / 8
8. A proposal, including an explanation of how donations will help your shelter, is provided. 5 pts: Formal explanation is included. 0 pt: Explanation is not included.	_____ / 5
Total Points	_____ / 50

Name _____ Date _____ Period _____

What Do You Think?

Creativity and Innovation

1. After viewing the proposals, what impressed you? Explain.

2. Are there any aspects of your proposal that you would change or modify? Explain.

Entrepreneurial Literacy

3. What are some of the job functions of a shelter operator?

4. What must be taken into account when deciding how much to feed a pet?

5. What other costs need to be considered when caring for a cat or dog?

6. What factors influenced the number of each animal that you chose?

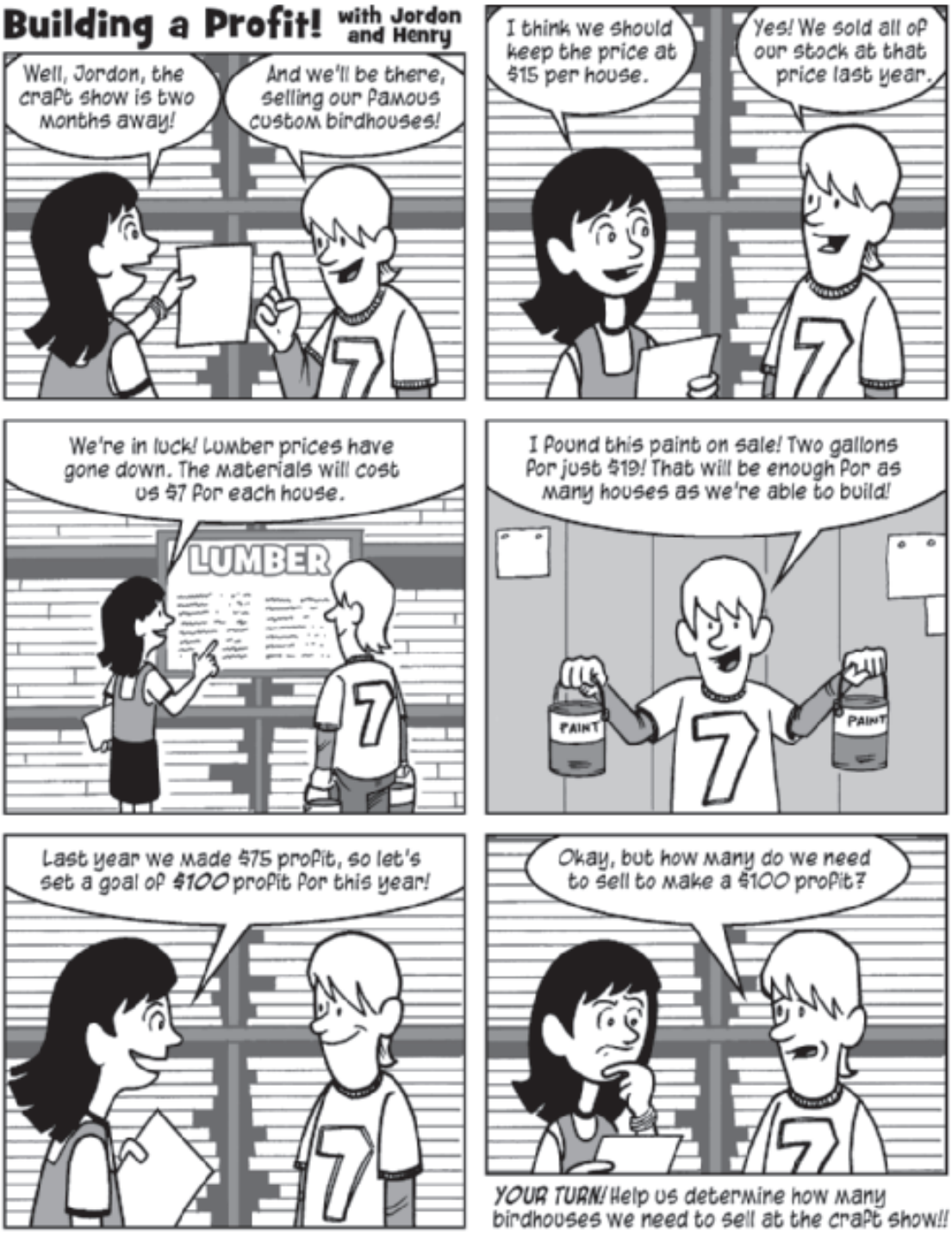
7. Would access to more money change your decisions about which types of animals you chose? Why?

Critical Thinking

8. How can math help you to determine how many pets you can care for given a certain budget?

9. Why would representing a budget with an inequality be better than using an equation?

Equations and Inequalities 2: *Solving Linear Inequalities*



4

Graphic Novels

Graphic Novels provide real-world problem-solving situations in a graphic novel format.

Lesson-Level Resources

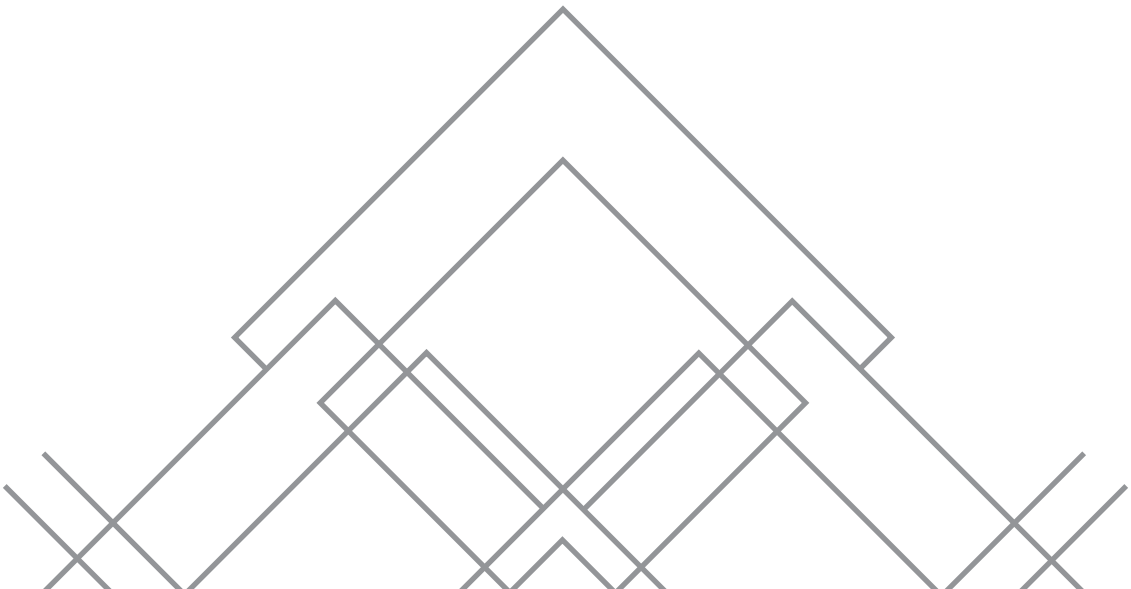
Lead Every Lesson

Every day, every class, every student is a little different. Be ready for every day challenges with resources built into the *Oklahoma Glencoe High School Math Series* to help stay in front of these challenges.

Keep these resources at your fingertips for quick and easy adjustments.

- **Oklahoma Interactive Student Guide:** With focus on Oklahoma Academic Standards for Mathematics, this resource takes students deeper into the content in a format that prepares them for next generation assessments.
- **Personal Tutors:** Step-by-step solutions to sample problems for students to review and practice key concepts.
- **5-Minute Check Transparencies:** Lesson summaries with questions from standardized tests. Use to measure understanding of concepts.
- **Editable Worksheets:** Practice opportunities. Use to help students skill development, intervention, and enrichment.
- **Animations:** Motion graphics explaining key concepts. Review to engage visual learners more deeply in chapter content.
- **Calculator Activities:** Expand concepts to supplement your lesson planning.

All of these resources help students gain confidence, mathematical and real-world knowledge as they learn critical thinking skills.



5-Minute Check (over Lesson 5-1)

Use with Lesson **5-2**

Solve each inequality. Then graph the solution on a number line.

1. $y - 3 > 5$

2. $t + 9 \leq 6$

3. $4n > 3n + 9$

Define a variable, write an inequality, and solve each problem. Check your solution.

4. The sum of a number and 7 is at least -5.

5. Twenty is less than the sum of twice a number and 8.

Standardized Test Practice

6. Solve $-7 < m - (-16)$.

A $m > -23$ **B** $m > 23$ **C** $m < -9$ **D** $m < 9$

ANSWERS

1. $\{y \mid y > 8\}$

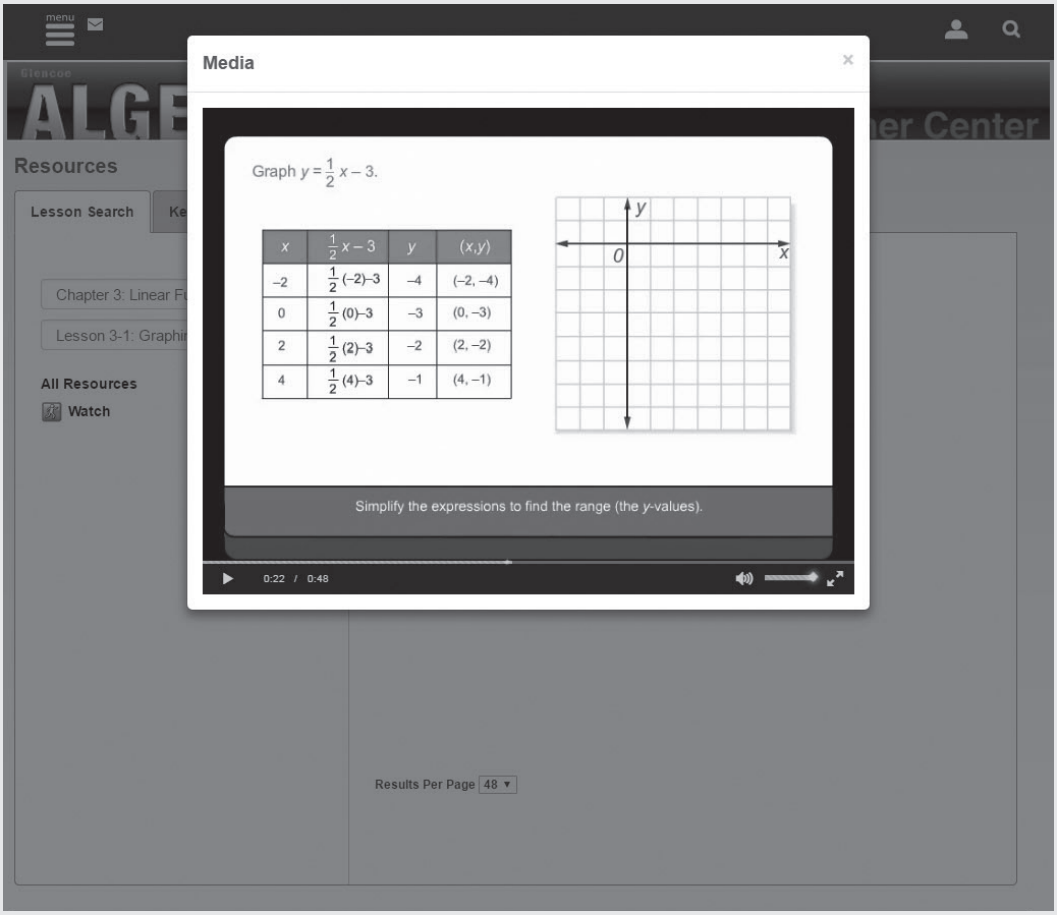
2. $\{t \mid t \leq -3\}$

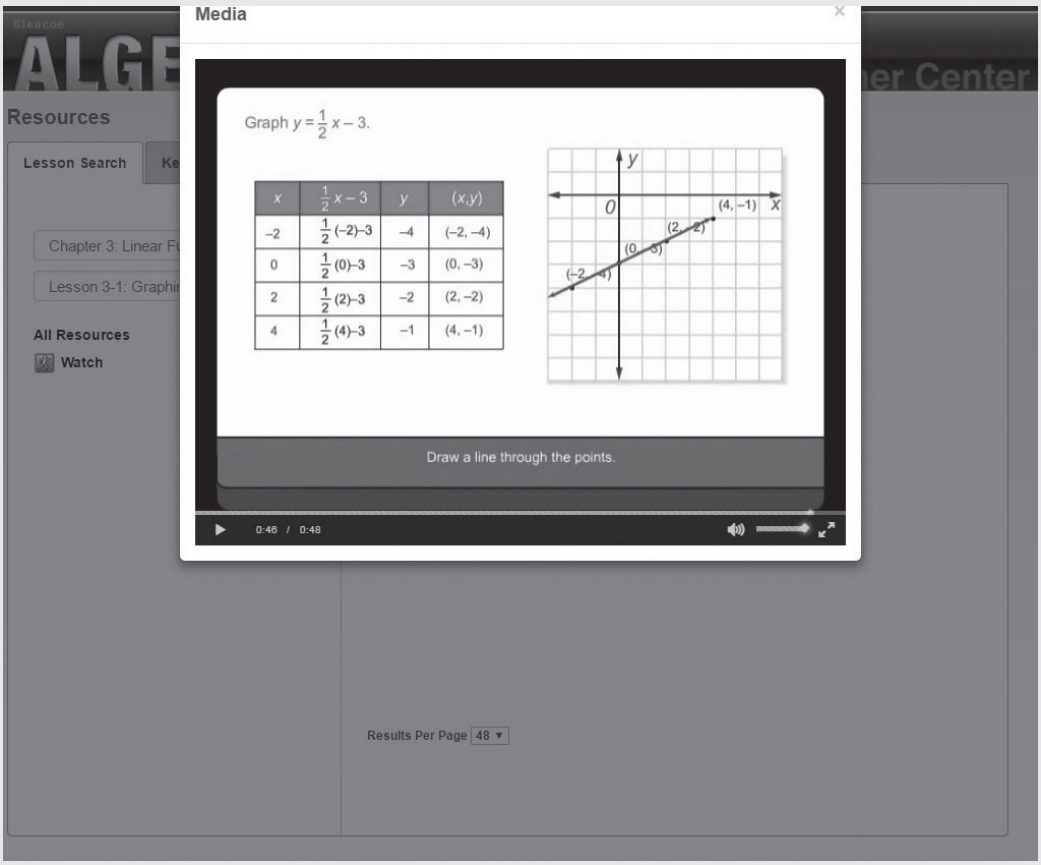
3. $\{n \mid n > 9\}$

4. let n = the number; $n + 7 \geq -5$; $\{n \mid n \geq -12\}$
5. let n = the number; $20 < 2n + 8$; $\{n \mid n > 6\}$
6. A

5-Minute Check

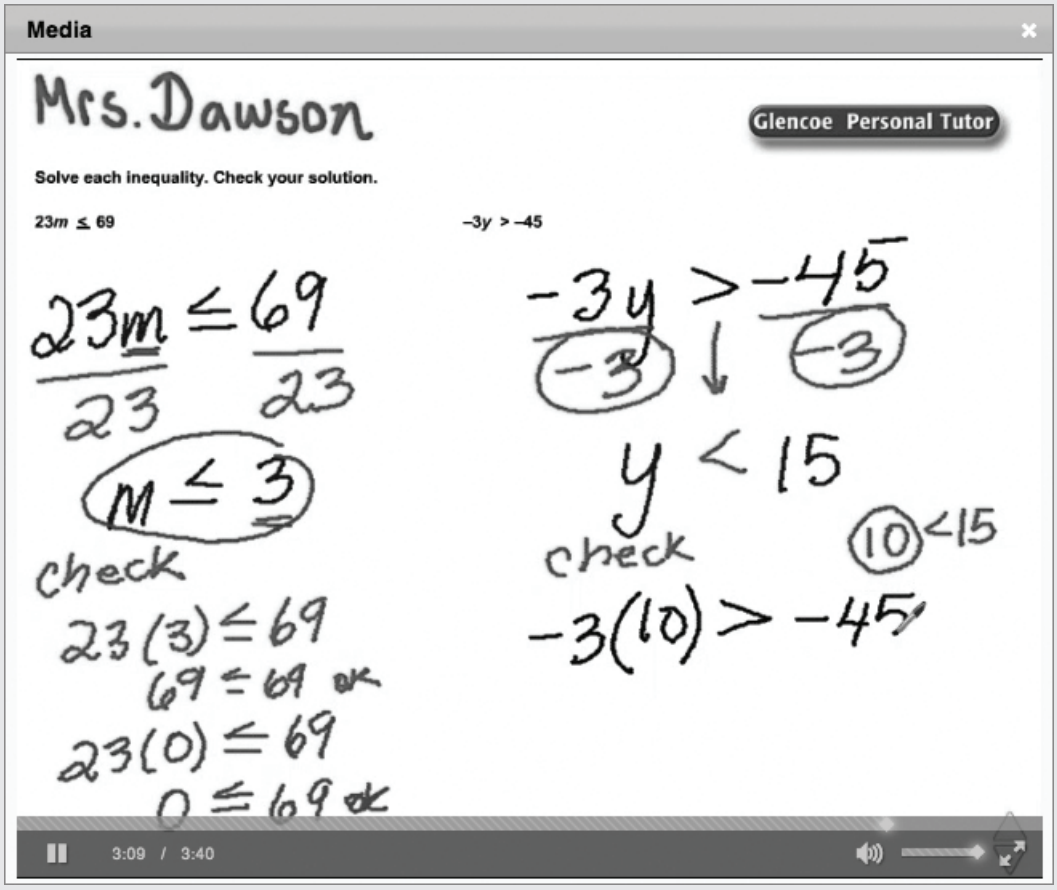
Used as warm-up activities at the beginning of the class period, or as a quiz or end-of-lesson check to monitor students' understanding.

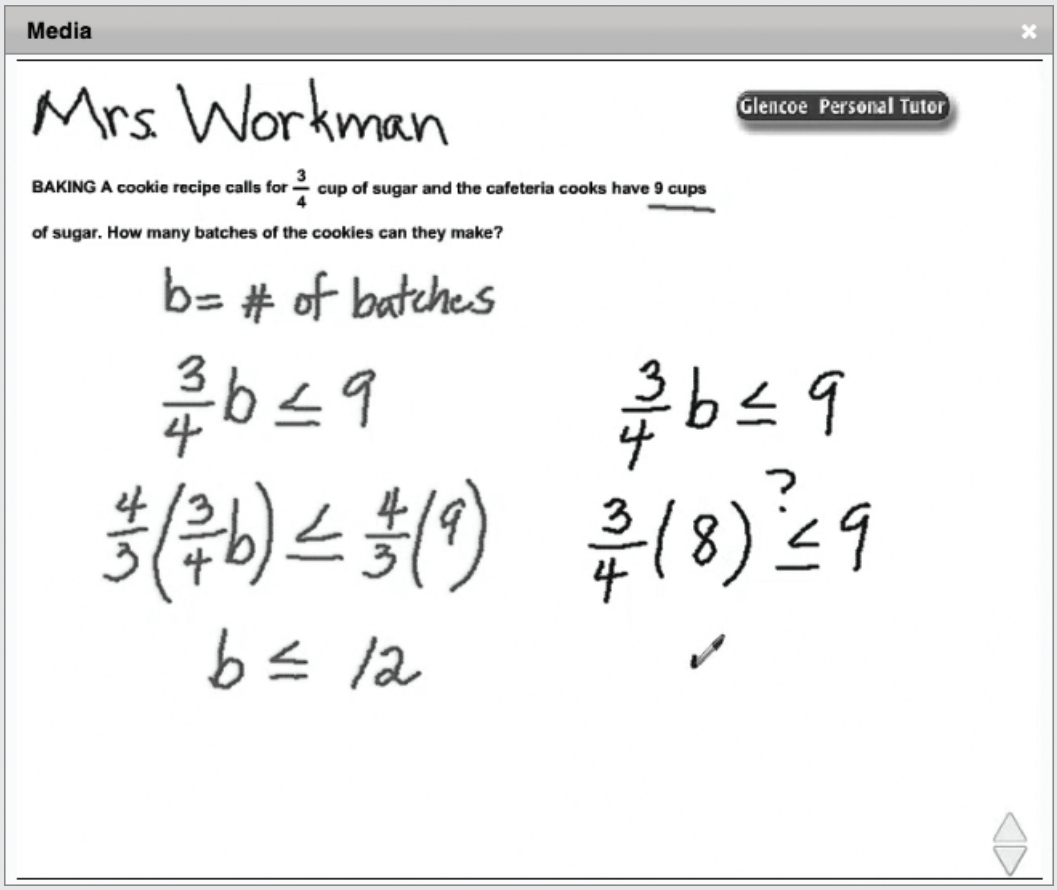




Animations and BrainPOP® Videos

Animations are demonstrations of selected Key Concepts and topics from your textbook.





Personal Tutors

The Glencoe Personal Tutor Plus presents a teacher explaining a step-by-step solution to a problem like one presented in the lesson, PLUS an online activity to check your understanding.

NAME _____ DATE _____ PERIOD _____

5-2 Solving Inequalities by Multiplication and Division

What You'll Learn

Scan the lesson. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Explain how the *Multiplication Property of Equality* and the *Division Property of Equality* can both be used to solve the equation $3x = 24$. *(Lesson 2-2)*

Multiplication Property of Equality	Division Property of Equality

Vocabulary Link Solve the inequality below by following the outlined steps.

$-18 > -3x$

↓

Add $3x$ to each side.

↓

Add 18 to each side.

↓

Divide each side by 3.

Lesson 5-2

Study Notebook

The Study Notebook helps students organize their notes for understanding and quick retrieval of information.

Main Idea	Details

Solve Inequalities by Multiplication

Compare and contrast the process for solving the inequalities $-\frac{1}{3}x > -12$ and $\frac{1}{3}x > 12$ and for showing the solution sets on a number line.

Similarities: _____

Differences: _____

Solve Inequalities by Division

Classify each inequality listed in the chart below.

$3x > -12$, $-4x < 15$, $-\frac{2}{3}x \leq -15$, $x - 5 > -15$, $\frac{1}{4}x \geq -8$, $-x > 9$, $x + 14 < -6$, $\frac{3}{2}x > -7$

The inequality symbol is not reversed when solving.	The inequality symbol is reversed when solving.

NAME _____ DATE _____ PERIOD _____

5-2 Study Guide and Intervention

Solving Inequalities by Multiplication and Division

Solve Inequalities by Multiplication If each side of an inequality is multiplied by the same positive number, the resulting inequality is also true. However, if each side of an inequality is multiplied by the same negative number, the direction of the inequality must be reversed for the resulting inequality to be true.

Multiplication Property of Inequalities	For all numbers a, b, and c, with $c \neq 0$, **1.** if c is positive and $a > b$, then $ac > bc$; if c is positive and $a < b$, then $ac < bc$; **2.** if c is negative and $a > b$, then $ac < bc$; if c is negative and $a < b$, then $ac > bc$.

The property is also true when > and < are replaced with ≥ and ≤.

Example 1: solve $-\frac{y}{8} \leq 12$

$-\frac{y}{8} \leq 12$	Original inequality
$(-8)\left(-\frac{y}{8}\right) \leq (-8)12$	Multiply each side by –8;change ≥ to ≤.
$y \leq -96$	Simplify.

The solution is $\{y \mid y \leq -96\}$.

Example 2: solve $\frac{3}{4}k < 15$

$\frac{3}{4}k < 15$	Original inequality
$\left(\frac{4}{3}\right)\frac{3}{4}k < \left(\frac{4}{3}\right)15$	Multiply each side by $\frac{4}{3}$.
$k < 20$	Simplify.

The solution is $\{k \square k < 20\}$.

Exercises

Solve each inequality. Check your solution.

1. $\frac{y}{6} \leq 2$ **2.** $-\frac{n}{50} > 22$ **3.** $\frac{3}{5}h \geq -3$ **4.** $-\frac{p}{6} < -6$

5. $\frac{1}{4}n \geq 10$ **6.** $-\frac{2}{3}b < \frac{1}{3}$ **7.** $\frac{3m}{5} < -\frac{3}{20}$ **8.** $-2.51 \leq -\frac{2h}{4}$

9. $\frac{g}{5} \geq -2$ **10.** $-\frac{3}{4} > -\frac{9p}{5}$ **11.** $\frac{n}{10} \geq 5.4$ **12.** $\frac{2a}{7} \leq 6$

Define a variable, write an inequality, and solve each problem. Check your solution.

13. Half of a number is at least 14.

14. The opposite of one-third a number is greater than 9.

15. One fifth of a number is at most 30.

Study Guide and Intervention

The Study Guide and Intervention Worksheet help the student preview the concepts and practice the skills of the lesson.

NAME _____ DATE _____ PERIOD _____

5-2 Study Guide and Intervention *(continued)*

Solving Inequalities by Multiplication and Division

Solve Inequalities by Division If each side of a true inequality is divided by the same positive number, the resulting inequality is also true. However, if each side of an inequality is divided by the same negative number, the direction of the inequality symbol must be reversed for the resulting inequality to be true.

Division Property of Inequalities	For all numbers a, b, and c with $c \neq 0$, **1.** if c is positive and $a > b$, then $\frac{a}{c} > \frac{b}{c}$; if c is positive and $a < b$, then $\frac{a}{c} < \frac{b}{c}$; **2.** if c is negative and $a > b$, then $\frac{a}{c} < \frac{b}{c}$; if c is negative and $a < b$, then $\frac{a}{c} > \frac{b}{c}$.

The property is also true when > and < are replaced with ≥ and ≤.

Example : Solve $-12y \geq 48$.

$-12y \geq 48$	Original inequality
$\frac{-12y}{-12} \leq \frac{48}{-12}$	Divide each side by –12 and change ≥ to ≤.
$y \leq -4$	Simplify.

The solution is $\{y \mid y \leq -4\}$.

Exercises

Solve each inequality. Check your solution.

1. $25g \geq -100$ **2.** $-2x \geq 9$ **3.** $-5c > 2$ **4.** $-8m < -64$

5. $-6k < \frac{1}{5}$ **6.** $18 < -3b$ **7.** $30 < -3n$ **8.** $-0.24 < 0.6w$

9. $25 \geq -2m$ **10.** $-30 > -5p$ **11.** $-2n \geq 6.2$ **12.** $35 < 0.05h$

13. $-40 > 10h$ **14.** $-\frac{2}{3n} \geq 6$ **15.** $-3 < \frac{p}{4}$ **16.** $4 > \frac{-x}{2}$

Define a variable, write an inequality, and solve each problem. Then check your solution.

17. Four times a number is no more than 108.

18. The opposite of three times a number is greater than 12.

19. Negative five times a number is at most 100.

NAME _____ DATE _____ PERIOD _____

5-2 Skills Practice

Solving Inequalities by Multiplication and Division

Match each inequality with its corresponding statement.

1. $3n < 9$	**a.** Three times a number is at most nine.
2. $\frac{1}{3}n \geq 9$	**b.** One third of a number is no more than nine.
3. $3n \leq 9$	**c.** Negative three times a number is more than nine.
4. $-3n > 9$	**d.** Three times a number is less than nine.
5. $\frac{1}{3}n \leq 9$	**e.** Negative three times a number is at least nine.
6. $-3n \geq 9$	**f.** One third of a number is greater than or equal to nine.

Solve each inequality. Check your solution

7. $14g > 56$	**8.** $11w \leq 77$	**9.** $20b \geq -120$	**10.** $-8r < 16$
11. $-15p \leq -90$	**12.** $\frac{x}{4} < 9$	**13.** $\frac{\alpha}{9} \geq -15$	**14.** $-\frac{p}{7} > -9$
15. $-\frac{t}{12} \geq -90$	**16.** $5z < -90$	**17.** $-13m > -26$	**18.** $\frac{k}{5} \leq -17$
19. $-y < 36$	**20.** $-16c \geq -224$	**21.** $-\frac{h}{10} \leq 2$	**22.** $12 > \frac{d}{12}$

Define a variable, write an inequality, and solve each problem. Check your solution.

23. Four times a number is greater than –48.

24. One eighth of a number is less than or equal to 3.

25. Negative twelve times a number is no more than 84.

26. Negative one sixth of a number is less than –9.

27. Eight times a number is at least 16.

Skills Practice

Skills Practice Masters provide students with additional practice in the skills taught in each lesson.

NAME _____ DATE _____ PERIOD _____

5-2 Practice

Solving Inequalities by Multiplication and Division

Match each inequality with its corresponding statement.

1. $-4n \geq 5$ **a.** Negative four times a number is less than five.

2. $\frac{4}{5}n > 5$ **b.** Four fifths of a number is no more than five.

3. $4n \leq 5$ **c.** Four times a number is fewer than five.

4. $\frac{4}{5}n \leq 5$ **d.** Negative four times a number is no less than five.

5. $4n < 5$ **e.** Four times a number is at most five.

6. $-4n < 5$ **f.** Four fifths of a number is more than five.

Solve each inequality. Check your solution.

7. $-\frac{\alpha}{5} < -14$ **8.** $-13h \leq 52$ **9.** $\frac{b}{16} \geq -6$ **10.** $39 > 13p$

11. $\frac{2}{3}n > -12$ **12.** $-\frac{5}{9}t < 25$ **13.** $-\frac{3}{5}m \leq -6$ **14.** $\frac{10}{3}k \geq -10$

15. $-3b \leq 0.75$ **16.** $-0.9c > -9$ **17.** $0.1x \geq -4$ **18.** $-2.3 < \frac{j}{4}$

19. $-15y < 3$ **20.** $2.6v \geq -20.8$ **21.** $0 > -0.5u$ **22.** $\frac{7}{8}f \leq -1$

Define a variable, write an inequality, and solve each problem. Check your solution.

23. Negative three times a number is at least 57.

24. Two thirds of a number is no more than –10.

25. Negative three fifths of a number is less than –6.

26. FLOODING A river is rising at a rate of 3 inches per hour. If the river rises more than 2 feet, it will exceed flood stage. How long can the river rise at this rate without exceeding flood stage?

27. SALES Pet Supplies makes a profit of $5.50 per bag on its line of natural dog food. If the store wants to make a profit of no less than $5225 on natural dog food, how many bags of dog food does it need to sell?

Practice

The Practice Worksheet helps students practice the skills in the lesson and use those skills to solve problems.

NAME _____ DATE _____ PERIOD _____

5-2 Word Problem Practice

Solving Inequalities by Multiplication and Division

1. PIZZA Tara and friends order a pizza. Tara eats 3 of the 10 slices and pays $4.20 for her share. Assuming that Tara has paid at least her fair share, write an inequality for how much the pizza could have cost.

2. AIRLINES On average, at least 25,000 pieces of luggage are lost or misdirected each day by United States airlines. Of these, 98% are located by the airlines within 5 days. From a given day's lost luggage, at least how many pieces of luggage are still lost after 5 days?

3. SCHOOL Gil earned these scores on the first three tests in biology this term: 86, 88, and 78. What is the lowest score that Gil can earn on the fourth and final test of the term if he wants to have an average of at least 83?

4. EVENT PLANNING The Downtown Community Center does not charge a rental fee as long as a rentee orders a minimum of $5000 worth of food from the center. Antonio is planning a banquet for the Quarterback Club. If he is expecting 225 people to attend, what is the minimum he will have to spend on food per person to avoid paying a rental fee?

5. PHYSICS The density of a substance determines whether it will float or sink in a liquid. The density of water is 1 gram per milliliter. Any object with a greater density will sink and any object with a lesser density will float. Density is given by the formula $d = \frac{m}{v}$, where m is mass and v is volume. Here is a table of common chemical solutions and their densities.

Solution	Density (g/mL)
concentrated calcium chloride	1.40
70% isopropyl alcohol	0.92

Source: American Chemistry Council

a. Plastics vary in density when they are manufactured; therefore, their volumes are variable for a given mass. A tablet of polystyrene (a manufactured plastic) sinks in water and in alcohol solution and floats in calcium chloride solution. The tablet has a mass of 0.4 gram. What is the most its volume can be?

b. What is the least its volume can be?

Word Problems

Word Problem Practice provides additional practice in solving word problems that apply the concepts of the lesson.

NAME _____ DATE _____ PERIOD _____

5-2 Enrichment

Quadratic Inequalities

Like linear inequalities, inequalities with higher degrees can also be solved. Quadratic inequalities have a degree of 2. The following example shows how to solve quadratic inequalities.

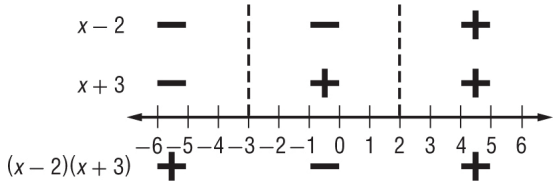
Example: Solve $(x + 3)(x - 2) > 0$.

Step 1 Determine what values of x will make the left side 0. In other words, what values of x will make either $x + 3 = 0$ or $x - 2 = 0$?

$x = -3$ or 2

Step 2 Plot these points on a number line. Above the number line, place a + if $x + 3$ is positive for that region or a – if $x + 3$ is negative for that region. Next, above the signs you have just entered; do the same for $x - 2$.

Step 3 Below the chart, enter the product of the two signs. Your sign chart should look like the following:



The final positive regions correspond to values for which the quadratic expression is greater than 0. So, the answer is

$x < -3$ or $x > 2$.

Exercises

Solve each inequality.

1. $(x - 1)(x + 2) > 0$

2. $(x + 5)(x + 2) > 0$

3. $(x - 1)(x - 5) < 0$

4. $(x + 2)(x - 4) \leq 0$

5. $(x - 3)(x + 2) \geq 0$

6. $(x + 3)(x - 4) \leq 0$

Enrichment

Enrichment Masters provide students with valuable opportunities for extending the lessons.

NAME _____ DATE _____ PERIOD _____

5-5 Graphing Calculator Activity

Absolute Value Inequalities

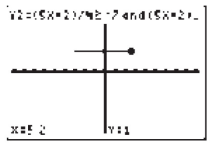
The **TEST** menu can be used to solve and graph absolute value inequalities by using the equivalent compound inequalities related to absolute value.

Example: Graph and solve each inequality.

a. $|x + 4| \geq 8$

Enter the inequality into **Y1**. Then enter the equivalent compound inequality into **Y2** and graph to view the results. Be sure to choose appropriate settings for the view window.

Keystrokes: MATH ▶ ENTER X,T,θ,*n* + 4) 2nd [TEST] 4 8 ENTER X,T,θ,*n* + 4 2nd [TEST] 6 (–) 8 2nd [TEST] ▶ 2 X,T,θ,*n* + 4 2nd [TEST] 4 8 ENTER GRAPH .



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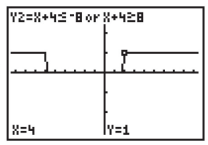
Use **TRACE** to confirm the solution. When $y = 1$ the statement is true, and when $y = 0$ the statement is false. Thus, the solution is $x \leq -12$ or $x \geq 4$.

≤

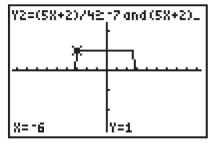


[−18.8, 18.8] scl:2 by [−3.1, 3.1] scl:1

b. $\left|\frac{5x + 2}{4}\right| \leq 7$

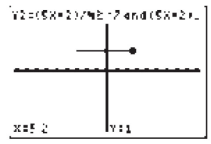
Enter the inequality into **Y1** and the equivalent compound inequalities into **Y2**. Then graph the solution set.

Keystrokes: MATH ▶ ENTER (5 X,T,θ,*n* + 2) ÷ 4) 2nd [TEST] 6 7 ENTER (5 X,T,θ,*n* + 2) ÷ 4 2nd [TEST] 4 (–) 7 2nd [TEST] ▶ ENTER (5 X,T,θ,*n* + 2) ÷ 4 2nd [TEST] 6 7 ENTER GRAPH .



[−18.8, 18.8] scl:2 by [−3.1, 3.1] scl:1

The statement is true between –6 and 5.2. Thus the solution is $-6 \leq x \leq 5.2$.



[−18.8, 18.8] scl:2 by [−3.1, 3.1] scl:1

Exercises

Graph and solve each inequality.

1. $|x + 3| \geq 2$ **2.** $|2x + 6| \leq 4$ **3.** $\left|\frac{2 - 4x}{5}\right| > 2$ **4.** $|x + 8| < -3$

Graphic Calculator Activities

Graphing Calculator Activities present ways in which technology can be used with the concepts in some lessons.

Self-Check Quizzes

Lesson 5-2
Solving Inequalities by Multiplication and Division

1. Solve $\frac{x}{3.2} < 7.4$.

   ○A. $\{x \mid x < 23.68\}$ ◉B. $\{x \mid x > 0.43\}$

   ○C. $\{x \mid x > 23.68\}$ ○D. $\{x \mid x < 2.31\}$

   Hint

---

2. Solve $-4y < -7$.

   ◉A. $\left\{y \middle| y > \frac{7}{4}\right\}$ ○B. $\left\{y \middle| y > -\frac{7}{4}\right\}$

   ○C. $\left\{y \middle| y < -\frac{7}{4}\right\}$ ○D. $\left\{y \middle| y < \frac{7}{4}\right\}$

   Hint

---

3. Solve $22p > 198$.

   ○A. $p < 4{,}356$ ○B. $p < 9$

   ◉C. $p > 9$ ○D. $p > 4{,}356$

   Hint

---

4. Write and solve an inequality for the following: *three-fourths of a number is greater than or equal to* –48.

   ○A. $x \leq -36$ ○B. $x \geq -36$

   ○C. $x \leq -64$ ○D. $x \geq -64$

   Hint

---

5. Solve $-15k > -120$.

   ○A. $k > -8$ ○B. $k < -8$

   ○C. $k > 8$ ○D. $k < 8$

   Hint

Check It

Self-Check Quizzes

Self-Check Quizzes help students review concepts from each lesson.

Real-World Example 1 Write and Solve and Inequality

HIKING **Mateo is walking at a rate of $\frac{3}{4}$ mile per hour. He knows that it is at least 9 miles to Onyx Lake. How long will it take Mateo to get there? Write and solve an inequality to find the length of time.**

Understand You know the rate that Mateo is walking and the approximate distance to the lake.

Plan The formula for distance is $d = rt$. Write an inequality that represents this situation.

KeyConcept Division Property of Inequalities

Words	Symbols	Examples
If both sides of a true inequality are divided by a positive number, the resulting inequality is also true.	For any real numbers a and b and any positive real number c, if $a > b$, then $\frac{a}{c} > \frac{b}{c}$. And, if $a < b$, then $\frac{a}{c} < \frac{b}{c}$.	$4.5 > 2.1$, $\frac{4.5}{3} > \frac{2.1}{3}$, $1.5 > 0.7$ and $1.5 < 5$, $\frac{1.5}{0.5} < \frac{5}{0.5}$, $3 < 10$
If both sides of a true inequality are divided by a negative number, the direction of the inequality sign is reversed to make the resulting inequality also true.	For any real numbers a and b, and any negative real number c, if $a > b$, then $\frac{a}{c} < \frac{b}{c}$. And, if $a < b$, then $\frac{a}{c} < \frac{b}{c}$.	$6 > 2.4$, $\frac{6}{-6} < \frac{2.4}{-6}$, $-1 < -0.4$ and $-1.8 < 3.6$, $\frac{-1.8}{-9} < \frac{3.6}{-9}$, $0.2 > -0.4$

Interactive Classroom Presentations

Interactive Classroom includes the 5-Minute Check questions; fully worked-out, step-by-step examples; and Check Your Progress problems in an editable PowerPoint format to use for classroom presentation on your whiteboard.

1.5 Equations

Objectives

- Write equations in one variable and use them to solve problems.
- Solve linear equations in one variable and explain the steps of the solution.

A mathematical sentence that contains an equals sign (=) is an **equation**. An equation states that two expressions are equal.

EXAMPLE 1 Investigate Equations

EXPLORE **A group of friends rented bicycles from different bike shops. The table shows the expression that each shop uses to calculate the cost of renting one of their bikes for *h* hours.**

Shop	Cost for h Hours ($)
Real Wheels	$5(h + 1)$
Easy Bike	$3.5h + 8.5$
Pedal Power	$2(3h - 1)$

a. **USE A MODEL** Kaden rented his bike from Easy Bike and he paid $26 for the rental. Write an equation that relates the expression the bike shop uses to calculate the cost and the amount Kaden paid. Do you think Kaden rented his bike for 6 hours? Justify your answer using the equation you wrote.

b. **CONSTRUCT ARGUMENTS** Do you think Kaden rented his bike for 5 hours? Justify your answer using the equation you wrote.

c. **CRITIQUE REASONING** Megan rented her bike from Real Wheels and she paid $25. She claims that she rented the bike for 5 hours. Do you agree? Use an equation to explain why or why not.

d. **USE REASONING** Kim-Ly rented her bike from Pedal Power and she paid $22. Did she rent the bike for 3, 4, or 5 hours? Use an equation to explain your answer.

Oklahoma Interactive Student Guide

Provides students practice and focus on Oklahoma Academic Standards for Mathematics within each lesson. Students are presented with multiple opportunities for higher-order thinking and conceptual understanding.

A **solution** of an equation is a value of the variable that makes the equation true. A set of numbers from which replacements for a variable may be chosen is called a **replacement set.** A **solution set** is the set of all solutions in the replacement set.

EXAMPLE 2 Solve an Equation

Complete these steps to solve the equation $(8^2 \div 4 - 11)p - 2p = 12$.

a. USE STRUCTURE Use the order of operations to simplify the expression in parentheses and write the resulting equivalent equation. Explain your steps.

b. USE STRUCTURE Explain how to simplify the resulting equation. What property justifies this step of the process?

c. USE STRUCTURE What is the solution of the equation? How do you know?

d. CHECK REASONABLENESS Explain how you can check that your solution is correct.

e. CRITIQUE REASONING Claire uses $\{3 < x < 5\}$ as the replacement set for the equation $(8^2 \div 4 - 11)p - 2p = 15$. This set is shown on the number line. She says the solution is $p = 5$. Do you agree? Justify your answer.

Some equations have no solution. Other equations have more than one solution. An equation that is true for every value of the variable is called an **identity**. For example, $x + 3 = 3 + x$ is an identity.

EXAMPLE 3 Solve an Equation

Complete these steps to solve the equation $5x + 4x + 3 = 2x + 2 + 7x$.

a. USE STRUCTURE Use one or more properties to justify each step of the solution process shown below.

$5x + 4x + 3 = 2x + 2 + 7x$ Original equation

$9x + 3 = 2x + 2 + 7x$ _____

$9x + 3 = 2x + 7x + 2$ _____

$9x + 3 = 9x + 2$ _____

b. CONSTRUCT ARGUMENTS What is the solution to the original equation? Justify your answer.

_____

_____

EXAMPLE 4 Solve an Equation

Complete these steps to solve the equation $-3b + 9b + 17 = 5b + 15 + b + 2$.

a. USE STRUCTURE Use one or more properties to justify each step of the solution process shown below.

$-3b + 9b + 17 = 5b + 15 + b + 2$ Original equation

$-3b + 9b + 17 = 5b + b + 15 + 2$ _____

$-3b + 9b + 17 = 6b + 17$ _____

$6b + 17 = 6b + 17$ _____

b. CONSTRUCT ARGUMENTS What is the solution to the original equation? Justify your answer.

_____

_____

Assessment Resources

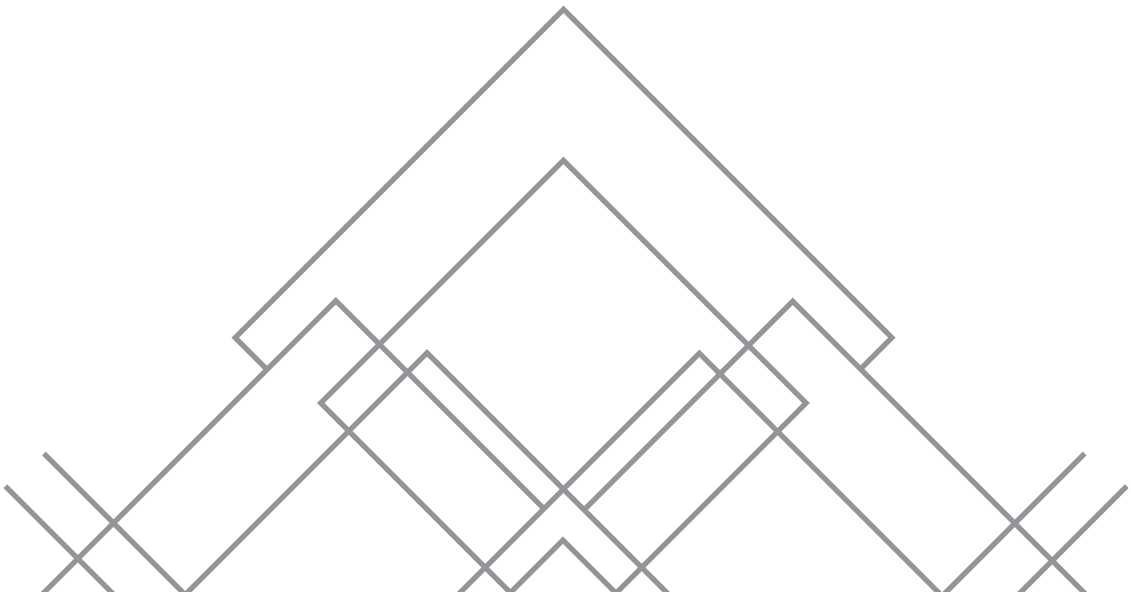
Learn with Every Assessment

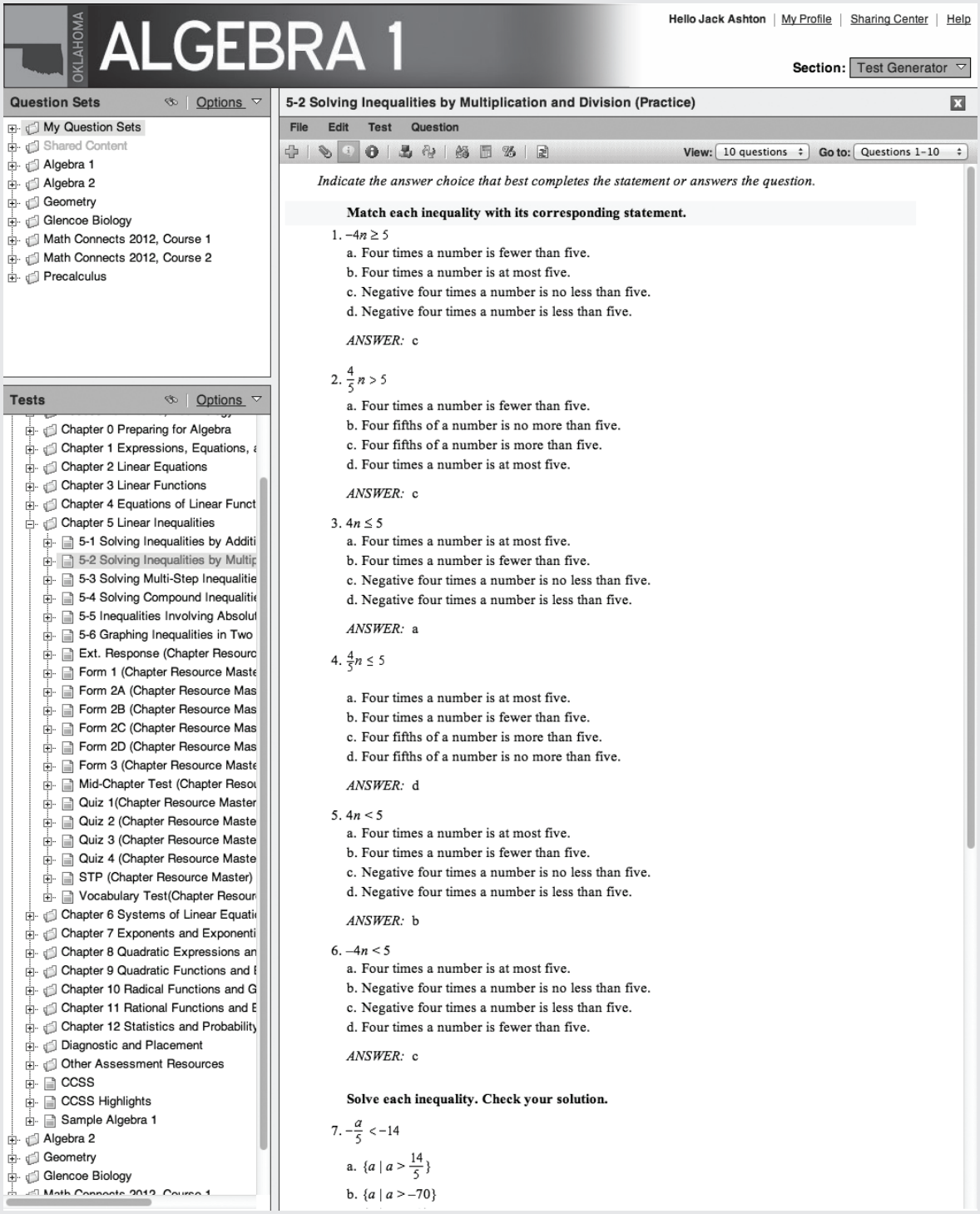
Assessments are the key to helping you determine where each student is academically to establish a path to move each student where they need to be.

You'll have assessment options including multiple choice, open ended questions, and assessments that are designed to mirror state tests.

Immediately following each chapter segment are quizzes and vocabulary tests to help you evaluate students' understanding of concepts presented in that segment.

Extended Response tests and standardized test practice encourage students to use their critical thinking skills as they prepare for state assessments.





eAssessment

A complete test building program with unique banks, as well as banks of the traditional assessments.

Proficiency Chart

Proficiency Level: 70%
School: Messina High School

Learning Objective	# of Items	# of Students	# Times Asked	Performance 0% 50% 100%	Student Average	% of Students Proficient
2(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section	5	13	109		69.7%	53.9%
2(B) know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	7	13	115		69.2%	61.5%
2(C) know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	4	10	200		64.5%	30.0%
2(D) distinguish between scientific hypotheses and scientific theories	8	21	397		67.2%	61.9%
Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers	4	1	4		75.0%	100%

Progress Chart

Instructor: Megan Johnson
School: Messina High School
Term: All
Proficiency Levels: ○ 0% - 64% ◒ 65% - 84% ● 85% - 100%

Standards	# Items	Eva Smith	Gary Holmes	Laura Langston	Paul Mcallister	Matthew Medina	Donna Puryear	Laura Jacobs
(3.A) determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including y = mx + b, Ax + By = C, and y - y1 = m(x - x1);	16	◒	●	○	◒	●	●	○
(3.B) calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems;	22	●	◒	◒	◒	◒	◒	●
(3.C) graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems;	9	◒	●	○	◒	●	●	●
(3.D) graph the solution set of linear inequalities in two variables on the coordinate plane;	10	◒	●	○	●	◒	◒	◒
(3.E) determine the effects on the graph of the parent function f(x) = x when f(x) is replaced by af(x), f(x) + d, f(x - c), f(bx) for specific values of a, b, c, and d;	7	●	◒	◒	◒	◒	◒	●
(3.F) graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist;	8	◒	●	○	●	◒	◒	◒
(3.G) estimate graphically the solutions to systems of two linear equations with two variables in real-world problems; and	32	●	◒	◒	◒	◒	◒	●
(3.H) graph the solution set of systems of two linear inequalities in two variables on the coordinate plane.	60	◒	●	○	●	◒	◒	◒

eAssessment Reports

Multiple reports are available to analyze student performance.

NAME _____ DATE _____ PERIOD _____

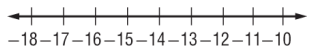
Chapter 5 Quiz 1

(Lessons 5-1 and 5-2)

SCORE _____

1. Solve $w + 9 \leq -5$. Then graph your solution on a number line.

1. _____



2. Define a variable, write an inequality, and solve:
A number decreased by 7 is at least 15.

2. _____

Solve each inequality.

3. $\frac{m}{13} > -6$

3. _____

4. $-3n \leq 84$

4. _____

5. MULTIPLE CHOICE Which inequality does *not* have the solution $\{x | x < -2\}$?

A $-3x > 6$

B $-\frac{x}{2} < 1$

C $7x < -14$

D $\frac{4}{3}x < -\frac{8}{3}$

5. _____

Chapter 5 Quiz 2

(Lessons 5-3)

SCORE _____

For Questions 1 and 3, solve each inequality.

1. $-\frac{d}{5} - 12 \geq 8$

1. _____

2. $23 - t \leq 2(t - 9) - 3(t + 2)$

2. _____

3. $16 < 3t - 2$

3. _____

4. Define a variable, write an inequality, and solve: *The sum of a number and three is less than nineteen less the number*.

4. _____

5. MULTIPLE CHOICE Connor is mailing some letters at the post office. Stamps cost 44 cents each. He also needs to mail a package that costs $7.65. Which expression shows how many letters Connor can mail if he has $10.00 to spend in total?

A $7.65 + 0.44x > 10.00$

B $7.65 + 0.44x < 10.00$

C $7.65 + 0.44x \geq 10.00$

D $7.65 + 0.44x \leq 10.00$

5. _____

Chapter Quizzes

Free-response quizzes offer assessment at appropriate intervals in the chapter.

NAME _____ DATE _____ PERIOD _____

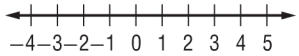
Chapter 5 Quiz 3

(Lessons 5-4 and 5-5)

SCORE _____

1. Solve $-1 < 2x - 1 \leq 5$. Then graph the solution set.

1. _____



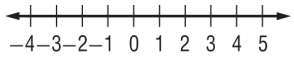
2. MULTIPLE CHOICE Which value of x is not a solution to $3x - 1 < 5$ or $7 - x \leq 3$?

A 0 **B** 2 **C** 4 **D** 5

2. _____

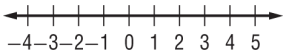
3. Solve $\left|\frac{x-1}{2}\right| \leq 1$. Then graph the solution set.

3. _____

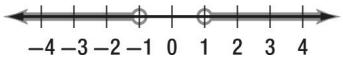


4. Solve $|2x - 1| \geq 3$. Then graph the solution set.

4. _____



5. Write an open sentence involving absolute value for the graph shown.



5. _____

Chapter 5 Quiz 4

(Lessons 5-6)

SCORE _____

1. MULTIPLE CHOICE Which is *not* true about the graph of $2x + y \geq 1$?

A The point (2, 2) is located inside the shaded region.

B The boundary is graphed as a solid line.

C The boundary is graphed along $y = -2x + 1$.

D The origin is located inside the shaded region.

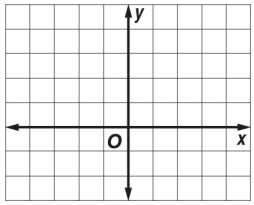
1. _____

2. Determine whether the test point (3, 3) is in the shaded half-plane of the graph of $y + 2 \leq 3x$.

2. _____

3. Use a graph to solve $\frac{1}{3}x + 4 \leq 3$.

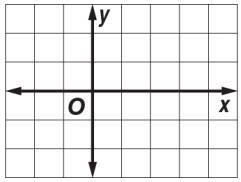
3.



For Questions 4 and 5, graph each inequality.

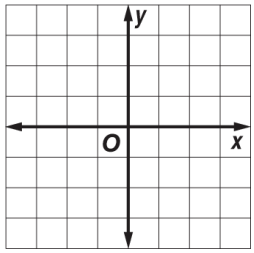
4. $x < 3$

4.



5. $-2(x - y) \leq 4$

5.



NAME _____ DATE _____ PERIOD _____

Chapter 5 Mid-Chapter Test

SCORE _____

(Lessons 5-1 through 5-3)

Part I ***Write the letter for the correct answer in the blank at the right of each question.***

For Questions 1-5, solve each inequality.

1. $r - \frac{7}{8} > 1$

A $\left\{r \mid r > \frac{1}{8}\right\}$ **B** $\left\{r \mid r < \frac{1}{8}\right\}$ **C** $\left\{r \mid r > 1\frac{7}{8}\right\}$ **D** $\left\{r \mid r < 1\frac{7}{8}\right\}$ **1.** _____

2. $12x + 5 \geq 17x - 10$

F $\{x \mid x \leq -3\}$ **G** $\{x \mid x \geq 3\}$ **H** $\{x \mid x \geq -3\}$ **J** $\{x \mid x \leq 3\}$ **2.** _____

3. $6m - 2(7 + 3m) > 5(2m - 3) - m$

A $\{m \mid m < 1\}$ **B** $\left\{m \mid m < \frac{1}{9}\right\}$ **C** $\{m \mid m > 1\}$ **D** $\left\{m \mid m > \frac{1}{9}\right\}$ **3.** _____

4. $\frac{2n}{7} \leq 4$

F $\{n \mid n \leq 14\}$ **G** $\{n \mid n \geq 14\}$ **H** $\left\{n \mid n \leq \frac{8}{7}\right\}$ **J** $\left\{n \mid n \geq \frac{8}{7}\right\}$ **4.** _____

5. $3t - 2(t - 1) \geq 5t - 4(2 + t)$

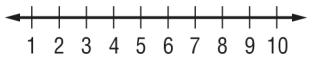
A $\left\{t \mid t \leq -\frac{5}{7}\right\}$ **C** $\{t \mid$ all real numbers$\}$

B $\left\{t \mid t \leq \frac{3}{4}\right\}$ **D** $\varnothing$ **5.** _____

Part II

6. Solve the inequality $4.2 > -11 + t$. Check your solution. **6.** _____

7. Solve the inequality $2x - 1 > 7$. Then graph the solution set. **7.** _____



Define a variable, write an inequality, and solve each problem.

8. For a package to qualify for a certain postage rate, the sum of its length and girth cannot exceed 85 inches. If the girth is 63 inches, how long can the package be? **8.** _____

9. The minimum daily requirement of vitamin C for 14-year-olds is at least 50 milligrams per day. An average-sized apple contains 6 milligrams of vitamin C. How many apples would a person have to eat each day to satisfy this requirement? **9.** _____

Mid-Chapter Test

The Mid-Chapter Test provides an option to assess the first half of the chapter. It includes both multiple-choice and free-response questions.

NAME _____ DATE _____ PERIOD _____

Chapter 5 Vocabulary Test

SCORE _____

boundary	compound inequality	intersection	system of inequalities
closed half-plane	half-plane	set-builder notation	union

Choose a term from the vocabulary list above to complete the sentence.

1. An equation defines the _____ or edge for each half-plane. **1.** _____

2. A _____ containing *and* is true if both of the inequalities it contains are true. **2.** _____

3. The solution set for an inequality that contains two variables consists of many ordered pairs which fill a region on the coordinate plane called a _____ . **3.** _____

4. The graph of a compound inequality containing *and* is the _____ of the graphs of the two inequalities. **4.** _____

5. The graph of a compound inequality containing *or* is the _____ of the graphs of the two inequalities. **5.** _____

Define each term in your own words.

6. open half-plane **6.** _____

7. set-builder notation **7.** _____

Vocabulary Test

The Vocabulary Test includes a list of vocabulary words and questions to assess students' knowledge of the words used in the chapter.

NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 1

SCORE _____

Write the letter for the correct answer in the blank at the right of each question .

For Questions 1–7, solve each inequality.

1. $x - 7 > 3$
A $\{x \mid x > 10\}$ **B** $\{x \mid x > -4\}$ **C** $\{x \mid x < 10\}$ **D** $\{x \mid x < -4\}$ **1.** _____

2. $3 \geq t + 1$
F $\{t \mid t \leq 4\}$ **G** $\{t \mid t \geq 2\}$ **H** $\{t \mid t \leq 2\}$ **J** $\{t \mid t \geq 4\}$ **2.** _____

3. $1 \geq \frac{-y}{4}$
A $\left\{y \mid y \geq -\frac{1}{4}\right\}$ **B** $\{y \mid y \geq -4\}$ **C** $\{y \mid y \leq 4\}$ **D** $\{y \mid y \leq 3\}$ **3.** _____

4. $5m < -25$
F $\{m \mid m < 125\}$ **G** $\{m \mid m < -125\}$ **H** $\{m \mid m > -5\}$ **J** $\{m \mid m < -5\}$ **4.** _____

5. $-36 \leq 3t$
A $\{t \mid t \geq -12\}$ **B** $\{t \mid t \leq 12\}$ **C** $\{t \mid t \geq 12\}$ **D** $\{t \mid t \leq -12\}$ **5.** _____

6. $6y - 8 > 4y + 26$
F $\{y \mid y > -9\}$ **G** $\{y \mid y > -17\}$ **H** $\{y \mid y > 9\}$ **J** $\{y \mid y > 17\}$ **6.** _____

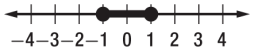
7. $3(2d - 1) \geq 4(2d - 3) - 3$
A $\{d \mid d \geq -9\}$ **B** $\{d \mid d \leq -6\}$ **C** $\{d \mid d \geq 3\}$ **D** $\{d \mid d \leq 6\}$ **7.** _____

8. Six is at least four more than a number. Which inequality represents this sentence?
F $6 \leq n + 4$ **G** $6 \geq n + 4$ **H** $4 \leq n + 6$ **J** $4 \geq n + 6$ **8.** _____

9. More than eighteen students in an algebra class pass the first test. This is about three-fifths of the class. How many students are in the class?
A less than 30 **B** less than 25 **C** more than 30 **D** 25 **9.** _____

10. Phillip has between two hundred and three hundred baseball cards. Which inequality represents this situation?
F $200 < p < 300$ **H** $p < 300$ or $p < 200$
G $200 > p > 300$ **J** $p < 200$ and $p > 300$ **10.** _____

11. Which of the following is the graph of the solution set of $m > -1$ and $m \leq 1$?

A


C


B


D


11. _____

12. Which compound inequality has the solution set shown in the graph?


F $x < -1$ or $x > 3$ **H** $x > -1$ or $x \geq 3$
G $x > -1$ or $x < 3$ **J** $x \leq -1$ or $x \geq 3$ **12.** _____

Chapter Test Form 1

Six forms of the Chapter Test are provided for each chapter. Form 1 contains multiple-choice questions and is intended for use with below grade level students.

NAME _____ DATE _____ PERIOD _____

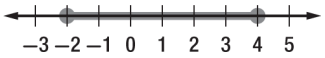
Chapter 5 Test, Form 1 *(continued)*

13. Which of the following is the solution set of $2a + 1 > 9$ or $a < -1$?

A $\{a \mid a < -1 \text{ or } a > 4\}$
B $\{a \mid a \leq -1 \text{ or } a \geq 4\}$
C $\{a \mid -1 \leq a \leq 4\}$
D $\{a \mid a < -1 \text{ or } a > 5\}$

13. _____

14. Which inequality corresponds to the graph shown?



F $|x - 3| \leq 1$
G $|x - 1| \leq 3$
H $|x - 3| \geq 1$
J $|x - 1| \geq 3$

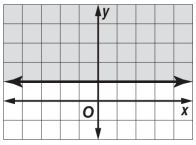
14. _____

15. Solve $|x - 3| < 2$.

A $\{x \mid 1 < x < 5\}$
B $\{x \mid -5 < x < -1\}$
C $\{x \mid -1 < x < 1\}$
D $\{x \mid -1 < x < 5\}$

15. _____

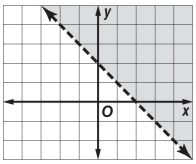
16. Which inequality has the solution set shown in the graph?



F $y < 1$
G $y \leq 1$
H $y > 1$
J $y \geq 1$

16. _____

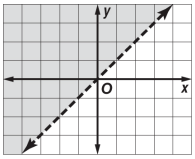
17. Which inequality has the solution set shown in the graph?



A $y < -x + 2$
B $y > -x + 2$
C $y < -x + 1$
D $y > -x + 1$

17. _____

18. Determine which of the ordered pairs are a part of the solution set for the inequality graphed at the right.



F (2, 1)
G (1, 3)
H (–3, –3)
J (–2, –3)

18. _____

19. Which inequality has a solution set of $\{x \mid x > 3 \text{ or } x < -3\}$?

A $|2x| > 6$
B $|2x| < 6$
C $|2x| \geq 6$
D $|2x| \leq 6$

19. _____

20. Juan's income y consists of at least \$37,500 salary plus 5% commission on all of his sales x. Which inequality represents Juan's income in one year?

F $y \leq 37{,}500 + 5x$
G $y \geq x + 0.05(37{,}500)$
H $y \geq 37{,}500 + 0.05x$
J $y \geq 37{,}500 + 5$

20. _____

Bonus If $x < 0$, which integer does not satisfy the inequality $x + 2 < 1$?

B: _____

NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 2A

SCORE _____

Write the letter for the correct answer in the blank at the right of each question .

For Questions 1-6, solve each inequality.

1. $-51 \le x + 38$
A $\{x \mid x \le -13\}$ **B** $\{x \mid x \le 89\}$ **C** $\{x \mid x \ge -89\}$ **D** $\{x \mid x \ge -13\}$ **1.** _____

2. $m - \frac{3}{8} > \frac{1}{2}$
F $\left\{m \mid m > \frac{3}{8}\right\}$ **G** $\left\{m \mid m < \frac{3}{8}\right\}$ **H** $\left\{m \mid m < \frac{1}{8}\right\}$ **J** $\left\{m \mid m > \frac{1}{8}\right\}$ **2.** _____

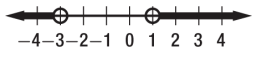
3. $\frac{t}{-2} > 4$
A $\{t \mid t < -8\}$ **B** $\{t \mid t < -2\}$ **C** $\{t \mid t > 2\}$ **D** $\{t \mid t > -8\}$ **3.** _____

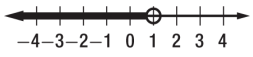
4. $-3.5z < 42$
F $\{z \mid z > 12\}$ **G** $\{z \mid z < 12\}$ **H** $\{z \mid z < -12\}$ **J** $\{z \mid z > -12\}$ **4.** _____

5. $4w - 6 > 6w - 20$
A $\{w \mid w < 7\}$ **B** $\{w \mid w < 2\}$ **C** $\{w \mid w < -7\}$ **D** $\{w \mid w < -2\}$ **5.** _____

6. $8r - (5r + 4) \ge -31$
F $\{r \mid r \le -9\}$ **G** $\{r \mid r \ge -9\}$ **H** $\{r \mid r \ge 9\}$ **J** $\{r \mid r \le 9\}$ **6.** _____

7. The sum of two consecutive integers is at most 3. What is the greatest possible value for the greater integer?
A 5 **B** 1 **C** 3 **D** 2 **7.** _____

8. Which of the following is the graph of the solution set of $y < -3$ or $y < 1$?
F 

H 

G 

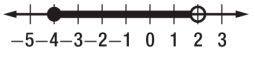
J 

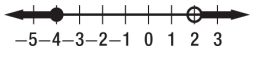
8. _____

9. Which compound inequality has the solution set shown in the graph? 

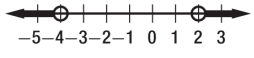
A $-1 < n < 2$
B $-1 \le n < 2$
C $n \ge -1$ or $n < 2$
D $-1 < n \le 2$
9. _____

10. Which of the following is the solution set of $-4 < 3t + 5 \le 20$?
F $\{t \mid -3 < t \le 5\}$
G $\{t \mid t < -3$ and $t \le 5\}$
H $\{t \mid t < -3\}$
J $\{t \mid t < -3$ or $t \ge 5\}$
10. _____

11. Which of the following is the graph of the solution set of $t - 4 \ge 4t + 8$ or $3t > 14 - 4t$?
A 

C 

B 

D 

11. _____

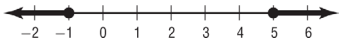
Chapter Test Form 2A

Form 2A contains multiple-choice questions aimed at on-grade level students, similar in format to other test settings.

NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 2A *(continued)*

12. Which inequality corrresponds to the graph shown?



F $|x - 2| < 3$ **H** $|x - 2| \geq 3$
G $|x - 2| > 3$ **J** $|x - 2| \leq 3$ **12.** _____

13. Which of the following is the solution set of $|2x - 3| > 4$?

A $\{x \mid x < -0.5 \text{ or } x > 3.5\}$ **C** $\{x \mid -0.5 < x < 3.5\}$
B $\{x \mid x < -1 \text{ or } x > 7\}$ **D** $\{x \mid x < 0.5 \text{ or } x > 3.5\}$ **13.** _____

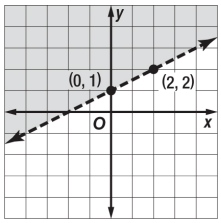
14. Pete's grade on a test was within 5 points of his class average of 94. What is his range of grades on the test?

F $g \leq 89$ or $g \geq 99$ **H** $g \geq 89$ or $g \geq 99$
G $89 \leq g \leq 99$ **J** $g < 99$ or $g < 89$ **14.** _____

15. Which ordered pair is part of the solution set of the inequality $12 + y \leq -3x$?

A (–16, 3) **B** (1, 4) **C** (4, –1) **D** (3, –16) **15.** _____

16. Which inequality is graphed at the right?



F $y < 2x + 1$ **H** $y < \frac{1}{2}x + 1$
G $y > 2x + 1$ **J** $y > \frac{1}{2}x + 1$ **16.** _____

17. Taka bought a new coat and new shoes. He spent \$122. Which inequality represents this situation if x represents the cost of a coat and y represents the cost of the shoes he buys?

A $122 \leq y + x$ **B** $y \leq 122 + x$ **C** $y - x \geq 122$ **D** $y \leq 122 - x$ **17.** _____

18. Determine which of the ordered pairs are a part of the solution of $y + 1 > \frac{1}{2}x + 3$.

F (2, 3) **G** (–4, 0) **H** (1, 2) **J** (–3, 1) **18.** _____

19. Which inequality has a solution set of $\{x \mid x > -3 \text{ or } x < -4\}$?

A $|2x + 7| < 1$ **C** $|2x + 7| > -1$
B $|2x + 7| > 1$ **D** $|2x + 7| > -1$ **19.** _____

20. Laurie and Maya sold at most \$50 worth of get-well and friendship cards. The friendship cards, x, were sold for \$2 each and the get-well cards, y, were sold for \$1.50 each. Which point represents a reasonable number of cards sold?

F (20, 10) **G** (15, 10) **H** (18, 20) **J** (10, 30) **20.** _____

Bonus Solve $6(|n| - 3) - 4|n| + 5 \leq 11$. **B:** _____

NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 2B

SCORE _____

Write the letter for the correct answer in the blank at the right of each question .

For Questions 1-6, solve each inequality.

1. $-13 > w + 12$
A $\{w \mid w < -25\}$ **B** $\{w \mid w > -25\}$ **C** $\{w \mid w > -1\}$ **D** $\{w \mid w < -1\}$ **1.** _____

2. $x - \frac{1}{4} \leq -\frac{1}{2}$
F $\left\{x \mid x \leq -\frac{1}{4}\right\}$ **G** $\left\{x \mid x \leq -\frac{3}{4}\right\}$ **H** $\left\{x \mid x \geq -\frac{1}{4}\right\}$ **J** $\left\{x \mid x \geq -\frac{3}{4}\right\}$ **2.** _____

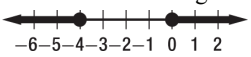
3. $\frac{m}{-5} < -3$
A $\{m \mid m > -15\}$ **B** $\{m \mid m < -15\}$ **C** $\{m \mid m < 15\}$ **D** $\{m \mid m > 15\}$ **3.** _____

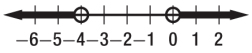
4. $-1.1t \leq 4.62$
F $\{t \mid t \leq 5.72\}$ **G** $\{t \mid t \geq 5.72\}$ **H** $\{t \mid t \leq -4.2\}$ **J** $\{t \mid t \geq -4.2\}$ **4.** _____

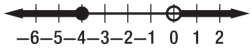
5. $5z - 4 > 2z + 8$
A $\{z \mid z > 4\}$ **B** $\{z \mid z < 1\}$ **C** $\{z \mid z < 4\}$ **D** $\{z \mid z > 1\}$ **5.** _____

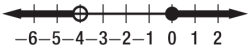
6. $7 - 9r - (r + 12) \leq 25$
F $\{r \mid r \leq -3\}$ **G** $\{r \mid r \leq -0.6\}$ **H** $\{r \mid r \geq -3\}$ **J** $\{r \mid r \geq -0.6\}$ **6.** _____

7. The sum of two consecutive integers is at most 7. What is the largest possible value for the lesser integer?
A 1 **B** 3 **C** 2 **D** 5 **7.** _____

8. Which of the following is the graph of the solution set of $x > 0$ or $x < -4$?
F 

H 

G 

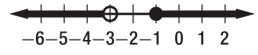
J 

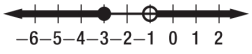
8. _____

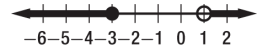
9. Which compound inequality has the solution set shown in the graph? 

A $-2 < y < 3$ **C** $y \geq -2$ or $y < 3$
B $-2 < y \leq 3$ **D** $-2 \leq y < 3$ **9.** _____

10. Which of the following is the solution set of $-3 < 2x + 7 \leq 13$?
F $\{x \mid -5 < x \leq 3\}$ **H** $\{x \mid x < -5\}$
G $\{x \mid x < 3$ or $x > -5\}$ **J** $\{x \mid -5 \leq x < 3\}$ **10.** _____

11. Which of the following is the graph of the solution set of $7a + 3 \leq a - 15$ or $5a - 3 < 8a$?
A 

C 

B 

D 

11. _____

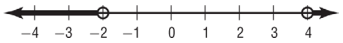
Chapter Test Form 2B

Form 2C contains free-response questions aimed at on-grade level students, similar in format to other test settings.

NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 2B *(continued)*

12. Which inequality corresponds to the graph shown?



F $|x - 3| > 1$ **H** $|x - 1| > 3$

G $|x - 3| < 1$ **J** $|x - 1| < 3$

12. _____

13. Which of the following is the solution set of $|4 - 7x| \geq 3$?

A $\left\{x \mid x < \frac{1}{7} \text{ or } x > 1\right\}$ **C** $\left\{x \mid x \leq \frac{1}{7} \text{ or } x \geq 1\right\}$

B $\{x \mid x \text{ is a real number.}\}$ **D** $\{x \mid 1 \leq x \leq 7\}$

13. _____

14. Katrina's weight is within 8 pounds of her ideal weight of 120 pounds. What is her range of weight?

F $x \geq 112$ or $x \geq 128$ **H** $112 \geq x \geq 128$

G $x \leq 112$ or $x \leq 128$ **J** $112 \leq x \leq 128$

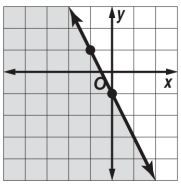
14. _____

15. Which ordered pair is part of the solution set of the inequality $5 - y \leq -3x$?

A (2, –1) **B** (–2, –1) **C** (–3, –5) **D** (3, –5)

15. _____

16. Which inequality is graphed?



F $y \leq 2x - 1$ **H** $y \leq -2x - 1$

G $y \geq 2x - 1$ **J** $y \geq -2x - 1$

16. _____

17. Alicia has at most \$196 to buy a new baseball glove and a new baseball bat. Which inequality represents this situation?

A $y \leq 196 - x$ **B** $y \leq 196 + x$ **C** $196 \leq y + x$ **D** $y - x \geq 196$

17. _____

18. Determine which of the ordered pairs are a part of the solution set of $y + 3 < 2x - 1$.

F (0, 0) **G** (2, 0) **H** (0, –4) **J** (2, –2)

18. _____

19. Which inequality has a solution set of $\{x \mid x > 4 \text{ and } x < 8\}$?

A $\left|\frac{1}{2}x - 3\right| < 1$ **C** $\left|\frac{1}{2}x - 1\right| < 3$

B $\left|\frac{1}{2}x - 3\right| > 1$ **D** $\left|\frac{1}{2}x - 1\right| > 3$

19. _____

20. Beng and Shim have less than \$30 for candle–making supplies. The molds x cost \$6 each and the wax y is \$2 per pound. Which point represents a reasonable number of molds and pounds of wax they could buy?

F (3, 4) **G** (4, 4) **H** (5, 1) **J** (3, 6)

20. _____

Bonus Solve $2 - 3x < 5(2 - x) \leq 3(2 - x) + 10$.

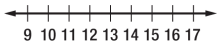
B: _____

NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 2C

SCORE _____

1. Solve $x - 12 > 1$. Then graph your solution on a number line. **1.** _____



Solve each inequality.

2. $7 + z < 3$ **2.** _____

3. $\frac{b}{8} > -\frac{1}{5}$ **3.** _____

4. $\frac{t}{6} \geq 14$ **4.** _____

5. $-19.8 \geq 3.6y$ **5.** _____

6. $-4r < 22$ **6.** _____

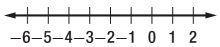
7. $4x - 5 < 2x + 11$ **7.** _____

8. $5(p + 2) - 2(p - 1) \geq 7p + 4$ **8.** _____

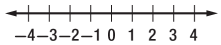
9. $1.3(c - 4) \leq 2.6 + 0.7c$ **9.** _____

Solve each compound inequality. Then graph the solution set.

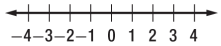
10. $3w < 6$ and $-5 < w$ **10.** _____



11. $-4 \leq n$ or $3n + 1 < -2$ **11.** _____

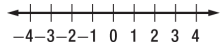


12. $-4x - 8 \geq -4$ or $7x - 5 < 16$ **12.** _____

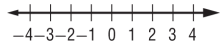


For Questions 13 and 14, solve each inequality. Then graph the solution set.

13. $|1 - x| \leq 2$ **13.** _____



14. $|3 - 2x| \geq 1$ **14.** _____



Chapter Test Form 2C

Form 2C contains free-response questions aimed at on-grade level students, similar in format to other test settings.

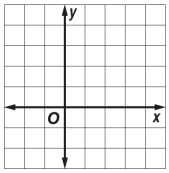
NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 2C *(continued)*

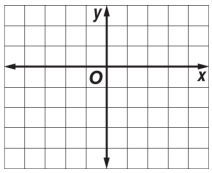
15. Solve $|8x + 2| < 14$. **15.** _____

16. Ian has \$6000. He wants to buy a car within \$1500 of this amount. Define a variable, write an open sentence, and find the range of car prices. **16.** _____

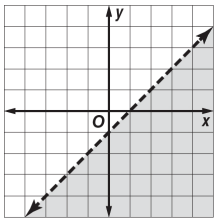
17. Graph $y > -\frac{1}{3}x + 2$. **17.**



18. Use a graph to solve $2x - 3y \leq 6$. **18.**



19. What inequality has the solution set shown in the graph?



19. _____

20. EXPENSES Camille has no more than \$20.00 to spend each week for lunch and bus fare. Lunch costs \$3.00 each day, and bus fare is \$0.75 each ride. Write an inequality for this situation. Can Camille buy lunch 5 times and ride the bus 8 times in one week? **20.** _____

Bonus Graph the solution set of the compound inequality $3 < |x - 4| < 7$. **B:**

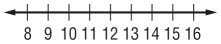
NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 2D

SCORE _____

1. Solve $y - 7 \leq 5$. Then graph your solution on a number line.

1. _____



Solve each inequality.

2. $8 + k \geq 13$ **2.** _____

3. $\frac{h}{3} < 9$ **3.** _____

4. $-\frac{2}{3} > \frac{z}{5}$ **4.** _____

5. $9.8 \geq 2.8k$ **5.** _____

6. $-3m < -18$ **6.** _____

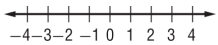
7. $5t + 8 \leq 3t - 3$ **7.** _____

8. $3(-w - 6) < 2(2w + 8) + 1$ **8.** _____

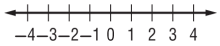
9. $1.9 + 1.7x < 2.1(3 + x)$ **9.** _____

Solve each compound inequality. Then graph the solution set.

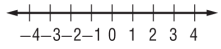
10. $7w > 14$ and $w < 3$ **10.** _____



11. $\frac{w}{3} < 1$ or $3w + 5 > 11$ **11.** _____

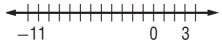


12. $2 + 3x > 8$ or $4 - 7x \leq -17$ **12.** _____



For Questions 13 and 14, solve each inequality. Then graph the solution set.

13. $|z + 4| \geq 7$ **13.** _____



14. $|w - 1| \leq 4$ **14.** _____

15. Solve $|2x - 5| < 3$. **15.** _____

Chapter Test Form 2D

Form 2DA contains free-response questions aimed at on-grade level students, similar in format to other test settings.

NAME _____ DATE _____ PERIOD _____

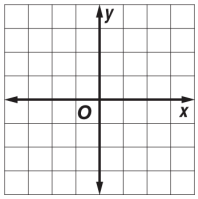
Chapter 5 Test, Form 2D *(continued)*

16. Abe has $4500. He wants to buy a boat within $1300 of this amount. Define a variable, write an open sentence, and find the range of boat prices.

16. _____

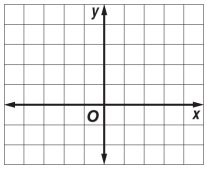
17. Graph $y > 3x$.

17.

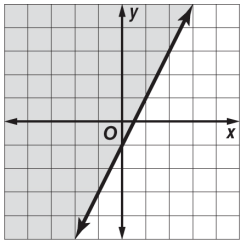


18. Use a graph to solve $2y - 4x < 8$.

18.



19. What inequality has the solution set shown in the graph?

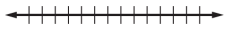


19. _____

20. SHOPPING Matthew is shopping for shoes and socks. He has $75.00 to spend. The shoes he likes cost $28.00, and the socks cost $4.00. Write an inequality for this situation. Can Matthew buy 2 pairs of shoes and 5 pairs of socks?

20. _____

Bonus Graph the solution set of the compound inequality $|x + 1| < 4$ or $|x + 1| \geq 6$.



B: _____

NAME _____ DATE _____ PERIOD _____

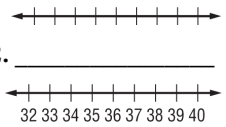
Chapter 5 Test, Form 3

SCORE _____

Solve each inequality. Then graph your solution on a number line.

1. $m - (-3.4) \geq 12.7$ **1.** _____

2. $t + (-4) < 32$ **2.** _____



Define a variable, write an inequality, and solve each problem.

3. Negative three sevenths plus a number is at least 2. **3.** _____

4. A number less 15 is greater than the sum of twice the number and 8. **4.** _____

Solve each inequality.

5. $-2.6 \geq \frac{w}{4}$ **5.** _____

6. $-11t < -9$ **6.** _____

7. $2 - 3b > \frac{11 - 15b}{7}$ **7.** _____

8. $5x - 3(x - 6) \leq 0$ **8.** _____

9. $-3x + 2(6x - 7) > 4(3 - 2x) + 17x - 8$ **9.** _____

Define a variable, write an inequality, and solve each problem.

10. Raul plans to spend no more than \$78.00 on two shirts and a pair of jeans. He bought the two shirts for \$19.89 each. How much can he spend on the jeans? **10.** _____

11. The sum of two consecutive positive even integers is at most 15. What are the possible pairs of integers? **11.** _____

12. Susan makes 10% commission on her sales. She also receives a salary of \$25,600. How much must she sell to receive a total income between \$32,500 and \$41,900? **12.** _____

Chapter Test Form 3

Form 3 contains free-response questions for use with above grade level students.

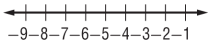
NAME _____ DATE _____ PERIOD _____

Chapter 5 Test, Form 3 *(continued)*

Solve each compound inequality, and graph the solution set.

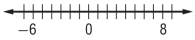
13. $-\frac{n}{2} < 3$ or $2n - 3 > 12$

13. _____



14. $2(x - 14) - x < 7(x + 2) + x \leq x + 70$

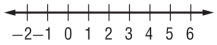
14. _____



For Questions 15–17, solve each inequality. Then graph the solution set.

15. $|-4x + 8| < 16$

15. _____

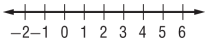


16. $|5x - 3| \geq 17$

16. _____

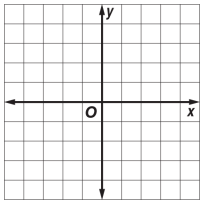
17. $\left|\frac{3 - 2x}{5}\right| \geq 1$

17. _____



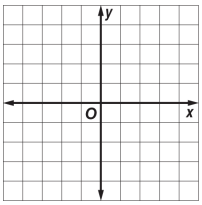
18. Graph $-y \leq 3x$.

18.



19. Use a graph to solve $x + 3y > -12$.

19.



20. DOGS Each afternoon Maria walks the dogs at a local pet shelter for up to 2 hours. Maria spends 16 minutes walking a large dog and 12 minutes walking a small dog. Write an inequality for this situation. If Maria walked 9 dogs in one afternoon, what is the greatest number of large dogs that she could have walked that afternoon?

20. _____

Bonus If $xy < 0$, determine if the compound inequality, $2x + 1 > 7$ and $4 - y < 3$, is *true* or *false*. Explain your reasoning.

B: _____

NAME _____ DATE _____ PERIOD _____

Chapter 5 Extended-Response Test

SCORE _____

Demonstrate your knowledge by giving a clear, concise solution to each problem. Be sure to include all relevant drawings and justify your answers. You may show your solution in more than one way or investigate beyond the requirements of the problem.

1. Solve $10n - 7(n + 2) > 5n - 12$. Explain each step in your solution.

2. Draw a line on a coordinate plane so that you can determine at least two points on the graph.

a. Write an inequality to represent one of the half planes created by the line.

b. Determine if the solution set of the inequality written for part **a** includes the line or not. Explain your response.

3. Let $b > 2$. Describe how you would determine if $ab > 2a$.

4. Determine if the open sentence $|x - 2| > 4$ and the compound inequality $-2x < 4$ or $x > 6$ have the same solution set.

5. ARCHITECTURE An architect is designing a house for the Frazier family. In the design, she must consider the desires of the family and the local building codes. The rectangular lot on which the house will be built is 158 feet long, and 90 feet wide.

a. The building codes state that one can build no closer than 20 feet to the lot line. Write an inequality to represent the possible widths of the house along the 90-foot dimension. Solve the inequality.

b. The Fraziers requested that the rectangular house contain no less than 2800 square feet and no more than 3200 square feet of floor space. If the house has only one floor, use the maximum value for the width of the house from part **a**, and explain how to use an inequality to find the possible lengths.

c. The Fraziers have asked that the cost of the house be about $175,000 and are willing to deviate from this price no more than $20,000. Write an open sentence involving an absolute value and solve. Explain the meaning of the answer.

Extended Response Test

The Extended Response Test contains performance-assessment tasks.

NAME _____ DATE _____ PERIOD _____

5 Standardized Test Practice

(Chapters 1–5)

SCORE _____

Part 1: Multiple Choice

Instructions: Fill in the appropriate circle for the best answer.

1. Which equation is *not* equivalent to $x - 7 = 12$? (Lesson 2-2)

A $x - 9 = 14$ **B** $x - 10 = 9$ **C** $x = 19$ **D** $x - 3 = 16$

1. Ⓐ Ⓑ Ⓒ Ⓓ

2. Find the value of y so that the line through (2, 3) and (5, y) has a slope of –2. (Lesson 3-3)

F –3 **G** $\frac{3}{2}$ **H** 9 **J** $\frac{9}{2}$

2. Ⓕ Ⓖ Ⓗ Ⓙ

3. Solve $-8x - 15 = -31$. (Lesson 2-3)

A 22 **B** 6 **C** 2 **D** 26

3. Ⓐ Ⓑ Ⓒ Ⓓ

4. If $f(x) = 3(x - 5)$, find $f(4)$. (Lesson 1-7)

F 7 **G** 27 **H** –3 **J** 3

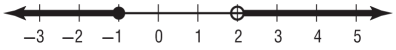
4. Ⓕ Ⓖ Ⓗ Ⓙ

5. Which equation shows the slope-intercept form of the line passing through (0, 1) and (2, 0)? (Lesson 4-2)

A $y = -2x + 1$ **B** $y = \frac{1}{2}x - 1$ **C** $y = 2x - 1$ **D** $y = -\frac{1}{2}x + 1$

5. Ⓐ Ⓑ Ⓒ Ⓓ

6. Write a compound inequality for the graph shown below. (Lesson 5-4)



F $-1 < x \leq 2$ **H** $-1 \leq x < 2$

G $x \leq -1$ or $x > 2$ **J** $x < -1$ or $x \geq 2$

6. Ⓕ Ⓖ Ⓗ Ⓙ

7. Solve $-\frac{1}{3}h \leq 6$. (Lesson 5-2)

A $h \leq -2$ **B** $h \leq -18$ **C** $h \geq -2$ **D** $h \geq -18$

7. Ⓐ Ⓑ Ⓒ Ⓓ

8. Solve $h + 3 \geq 2$. (Lesson 5-1)

F $h \leq 2$ **G** $h \geq -1$ **H** $h \geq 5$ **J** $h \leq -1$

8. Ⓕ Ⓖ Ⓗ Ⓙ

9. Solve $4x + 12 > 2$. (Lesson 5-3)

A $x > -2\frac{1}{2}$ **B** $x > -40$ **C** $x > 2\frac{1}{2}$ **D** $x > 3\frac{1}{2}$

9. Ⓐ Ⓑ Ⓒ Ⓓ

10. Which of the following is an arithmetic sequence? (Lesson 3-5)

F 1, 3, 6, 10, … **H** 34, 35, 38, 43, …

G 5, 8, 11, 14, … **J** 1, 4, 9, 16, …

10. Ⓕ Ⓖ Ⓗ Ⓙ

Standardized Test

Standardized Test Practice is cumulative and includes multiple-choice and short response questions.

NAME _____ DATE _____ PERIOD _____

5 Standardized Test Practice *(continued)*

11. Determine which is a linear equation. (Lesson 3-1)

A $\frac{1}{x} - y = 7$ **C** $3 = xy$

B $x^2 - 4 = y$ **D** $x - y = 4$

11. Ⓐ Ⓑ Ⓒ Ⓓ

12. Find the discounted price. Pants: $24 Discount: 15% (Lesson 2-7)

F $20.40 **G** $3.60 **H** $20 **J** $9

12. Ⓕ Ⓖ Ⓗ Ⓙ

13. Solve $8x - 5 = 23 + 4x$. (Lesson 2-4)

A 4.5 **B** 7 **C** 23 **D** 5

13. Ⓐ Ⓑ Ⓒ Ⓓ

14. Rewrite $5(a - b + c)$ using the Distributive Property. (Lesson 1-4)

F $5a - b + c$ **H** $5a - 5b + 5c$

G $5a + 5b + c$ **J** $5a + b + c$

14. Ⓕ Ⓖ Ⓗ Ⓙ

15. Write an equation that passes through (3, 2) and has a slope of –2. (Lesson 4-3)

A $y = 8x - 2$ **C** $y = -2x + 7$

B $y = -2x + 8$ **D** $y = -2x + 2$

15. Ⓐ Ⓑ Ⓒ Ⓓ

16. Find the slope of the line that passes through (–7, 8) and (–6, 5). (Lesson 3-3)

F –3 **G** $-\frac{1}{3}$ **H** 3 **J** –6

16. Ⓕ Ⓖ Ⓗ Ⓙ

17. Evaluate the expression if $x = 4$, $y = 3$, and $z = 2$. (Lesson 1-2)

$x^2 + 4y + z$

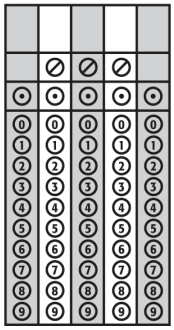
A 27 **B** 22 **C** 20 **D** 30

17. Ⓐ Ⓑ Ⓒ Ⓓ

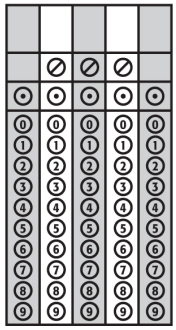
Part 2: Gridded Response

Instructions: Enter your answer by writing each digit of the answer in a column box and then shading in the appropriate circle that corresponds to that entry.

18. What is the slope of a line parallel to the line that passes through (–3, 1) and (3, 7)? (Lesson 4-4)



19. If $m + 3 \geq 14$, then complete the inequality $m - 6 \geq$ ____?____. (Lesson 5-1)



NAME _____ DATE _____ PERIOD _____

5 Standardized Test Practice *(continued)*

Part 3: Short Response

Instructions: Write your answer in the space provided.

20. Solve $\frac{a}{6} - 5 = 12$. (Lesson 2-3)

20. _____

21. If $f(x) = x^2 - 4x$, find $f(-3)$. (Lesson 1-7)

21. _____

22. Solve $y = \frac{1}{4}x - 1$ if the domain is $\{-4, -2, 0, 2, 4\}$. (Lesson 1-5)

22. _____

23. Write the slope-intercept form of an equation of the line that passes through $(0, -4)$ and is parallel to the graph of $4x - y = 7$. (Lesson 4-4)

23. _____

24. Solve $\frac{4}{5}a \leq -12$. (Lesson 5-2)

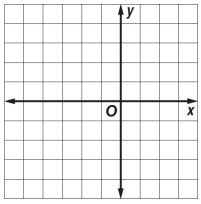
24. _____

25. Solve the proportion $\frac{0.6}{x} = \frac{0.3}{5}$. (Lesson 2-6)

25. _____

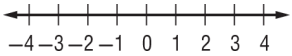
26. Graph $2x + 3y \geq -9$. (Lesson 5-6)

26.



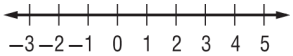
27. Solve $|3f + 2| \leq 7$. Then graph the solution set. (Lesson 5-5)

27. _____



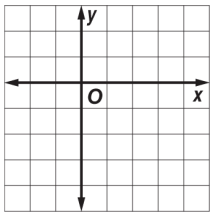
28. Solve $-5 \leq 2a - 1 < 9$. Then graph the solution set. (Lesson 5-4)

28. _____



29. Graph the equation $y = x - 4$. (Lesson 3-1)

29.



30. Mark is shopping during a computer store's 20% sale. He is considering buying computers that range in cost from $500 to $1000.

a. How much are the computers after the 20% discount? (Lesson 5-4)

30a. _____

b. If sales tax is 7%, how much should Mark expect to pay? (Lesson 5-4)

30b. _____

Program Resources Throughout

Support each student's tactile learning modality with resources that help you facilitate a learning environment that connects math to their world beyond the classroom.

eSolutions provides practice beyond the student edition

Math Triumphs provide scaffolding practice and other tools to help students who are falling behind.

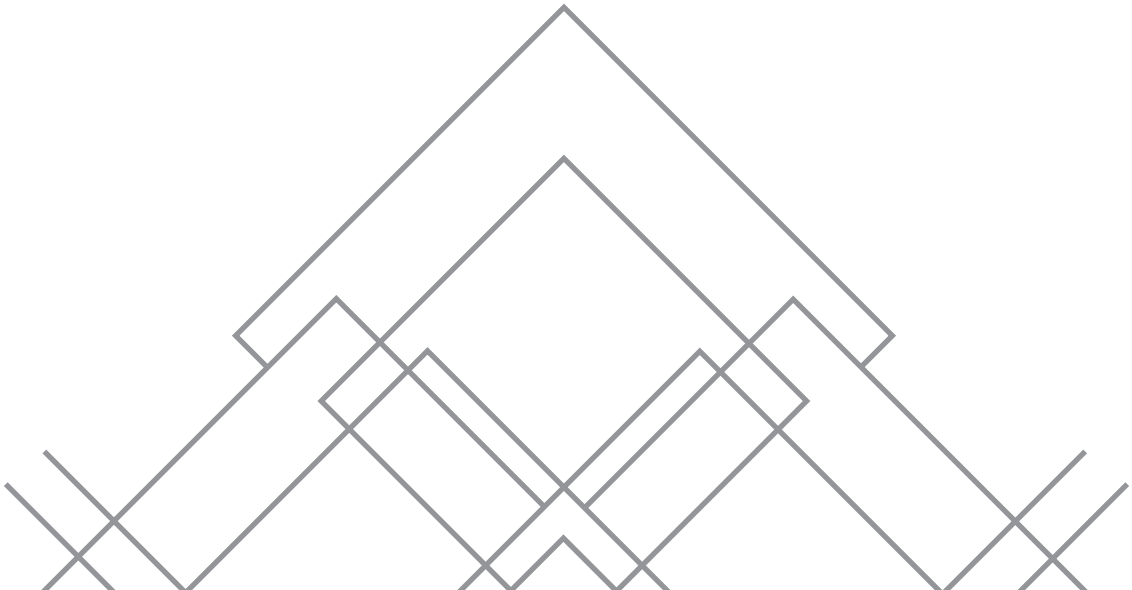
Diagnostic and Placement Tests and **Texas Instrument Easy Files** for your calculator provide practice opportunities beyond the text.

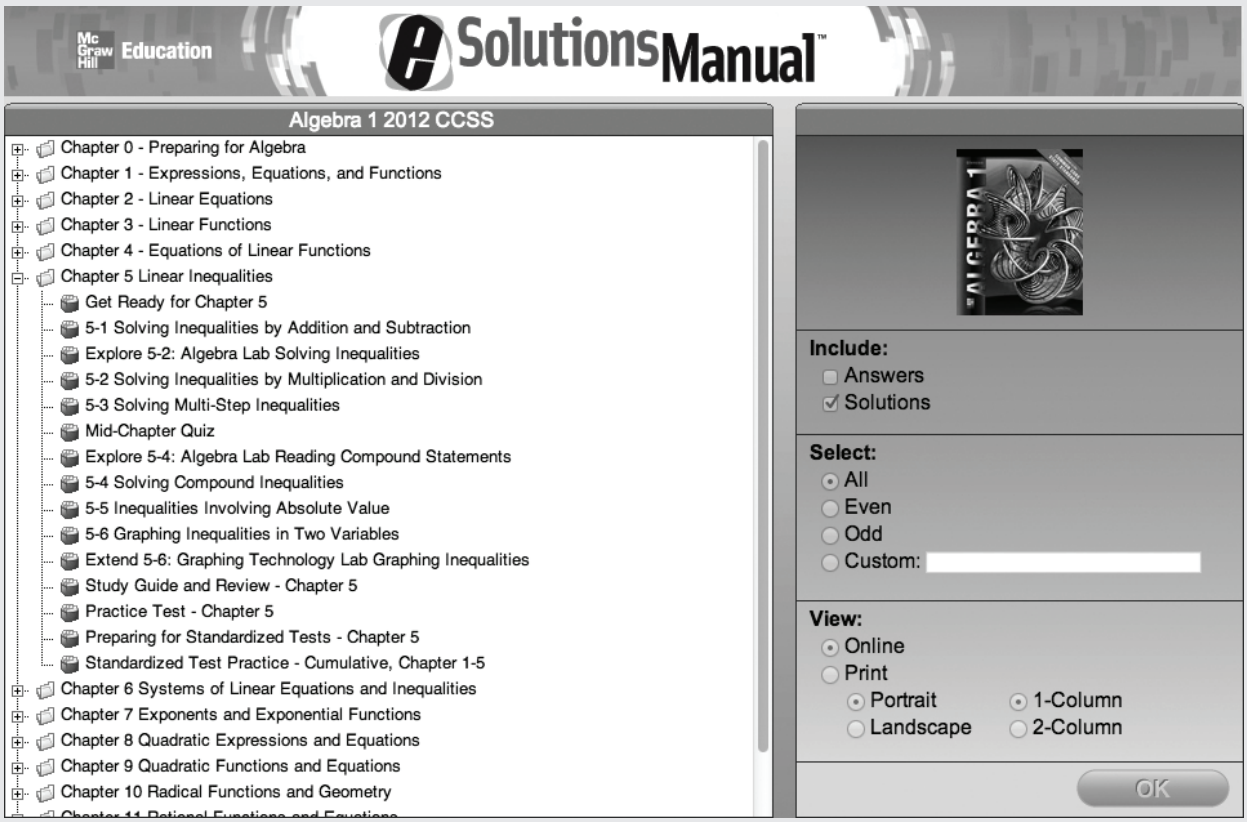
Multilingual Glossary to help English Language Learners in your classroom.

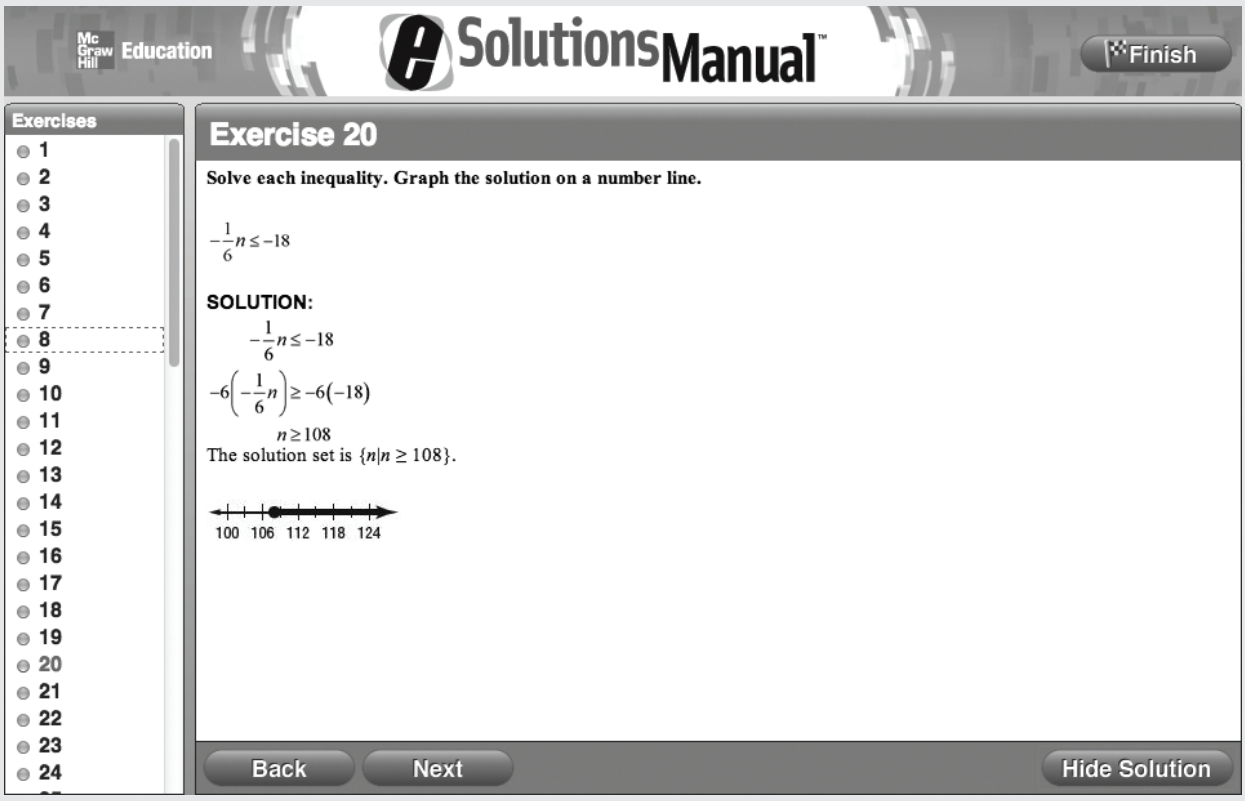
Graphing Tool illustrates to students as they manipulate it, how different variables create changes of the function.

eToolkit is a collection of digital resources online to explore different concepts with real-world problem solving questions.

The Geometer's Sketchpad® is software that comes with activities to deepen student knowledge using hands-on activities.







eSolutions

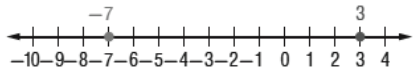
eSolutions provides the questions, answers, and solutions for questions in the student edition.

Lesson 1-2

Compare and Order Numbers

KEY Concept

On a number line, the greater number is to the right.



-7 is less than 3.

$-7 < 3$

Notice that the inequality symbol points to the lesser number.

3 is greater than -7.

$3 > -7$

When comparing numbers using **place value**, begin at the leftmost position and compare the digits.

143 < 192

In the hundreds place, 1 = 1.
In the tens place, 4 < 9.

VOCABULARY

inequality
a number sentence that compares two unequal expressions and uses <, >, ≤, ≥, or ≠

negative number
a number less than zero

place value
a value given to a digit by its position in a number

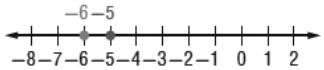
positive number
a number greater than zero

When comparing negative numbers, the number closest to zero is greater.

Example 1

Use >, <, or = to compare −6 and −5.

1. Graph both numbers on a number line.



2. Because -5 is to the right of -6, it is the greater number.
3. Write an inequality.

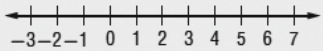
$-6 < -5$

Point the symbol to the lesser number.

YOUR TURN!

Use >, <, or = to compare 3 and −1.

1. Graph both numbers on a number line.



2. Because _____ is to the _____ of -1, it is the _____ number.
3. Write an inequality.

3 ◯ -1

GO ON

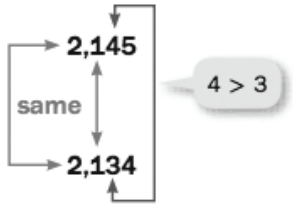
Math Triumphs

For students who are below grade level, Math Triumphs provides tools to identify areas of need, target instruction, scaffold practice, teach and review vocabulary, and assess to determine when students can advance and exit.

Example 2

Use >, <, or = to compare 2,145 and 2,134.

1. Begin on the left. The digits in the thousands place and hundreds place are the same.
2. So, compare the digits in the tens place.



3. Write an inequality statement.

2,145 > 2,134

YOUR TURN!

Use >, <, or = to compare 11,099 and 11,809.

1. Begin on the left. The digits in the _____ place and _____ place are the _____.
2. So, compare digits in the _____ place.

11,099

11,809

3. Write an inequality statement.

11,099 ◯ 11,809

Example 3

Order 212, 202, −200, 102, and −122 from least to greatest.

1. The number farthest left is the least. The negative numbers are −200 and −122. −200 is farther to the left than −122.

−200 < −122

2. The number closest to zero is the least positive. The positive numbers are 212, 202 and 102. 102 is closest to zero. 202 is closer to zero than 212.

102 < 202 < 212

3. Write the numbers from least to greatest.

−200, −122, 102, 202, 212

YOUR TURN!

Order 1,303; −2,713; −1,003; 1,297; and −2,987 from least to greatest.

1. The number farthest left is the least. The negative numbers are −2,713; −1,003; and −2,987. _____ is farther to the left than _____ and _____.

_____ < _____ < _____

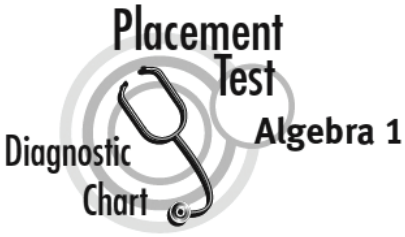
2. The number closest to zero is the least positive. The positive numbers are 1,303 and 1,297.

_____ is closer to zero than _____.

_____ < _____

3. Write the numbers from least to greatest.

_____



Student Performance Level	Number of Questions Correct	Suggestions for Intervention and Remediation
Intensive Intervention	**0–17**	Use *Glencoe Pre-Algebra* to accelerate the achievement of students who are below grade level. Students should follow a personalized remediation plan. A variety of materials and instructional methods are recommended. For example, instruction and practice should be provided in print, technology, and hands-on lessons.
Strategic Intervention	**18–23**	Use the additional Intervention and Remediation materials listed on the next page. This list of materials can provide helpful resources for students who struggle in the traditional mathematics program. Strategic intervention allows students to continue to remain in the *Glencoe Algebra 1* program, while receiving the differentiated instruction they need. Teaching Tips and other resources are also listed in the Teacher Edition.
Algebra 1	**24 or more**	Use *Glencoe Algebra 1*. This student does not require overall intervention. However, based on the student's performance on the different sections, intervention may be required. For example, a student who missed 3 or more questions in the Geometry section may require extra assistance as you cover these skills throughout the year.

A Special Note About Intervention

When using diagnostic tests, teachers should always question the reason behind the students' scores. Students can struggle with mathematics concepts for a variety of reasons. Personalized instruction is recommended for English language learners, students with specific learning disabilities, students with certain medical conditions, or for those who struggle with traditional instructional practice. Teachers should always consider the needs of the individual student when determining the best approach for instruction and program placement.

Diagnostic and Placement Tests

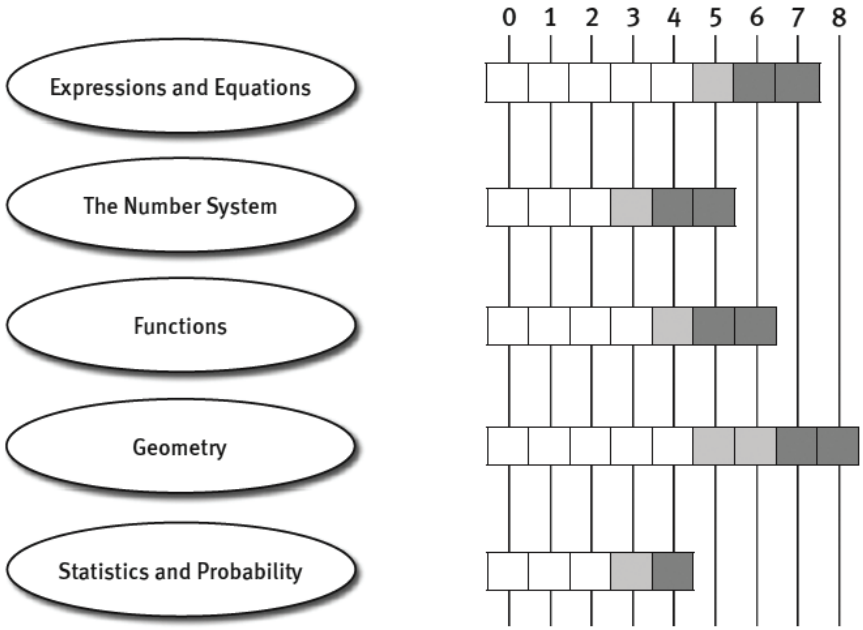
For students who are below grade level, Math Triumphs provides tools to identify areas of need, target instruction, scaffold practice, teach and review vocabulary, and assess to determine when students can advance and exit.

Placement Test Scoring Guide

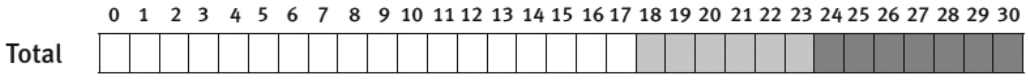
Algebra 1

Student Name _____

For each part, mark the box under the number of correctly answered questions.



Mark the total number correct below.



Key: Consider this student for...

- ☐ *Glencoe Pre-Algebra*
- ☐ Algebra 1 Strategic Intervention—See page 118 for materials list.
- ☐ *Glencoe Algebra 1*

Glosario

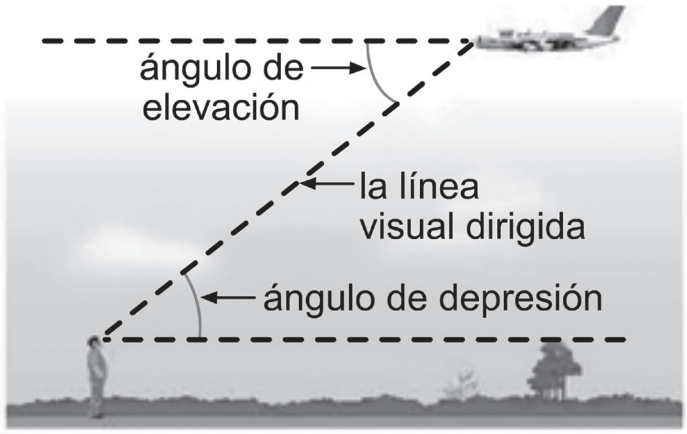
Español

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Todos

ángulo agudo
ángulo central
ángulo central de un polígono regular
ángulo de depresión
ángulo de elevación
ángulo de la base de un triángulo isósceles
ángulo de rotación
ángulo del vértice un triángulo isosceles
ángulo externo
ángulo incluido
ángulo inscrito

ángulo de elevación Ángulo formado por la horizontal y la línea de visión de un observador que mira hacia arriba.



Glossary

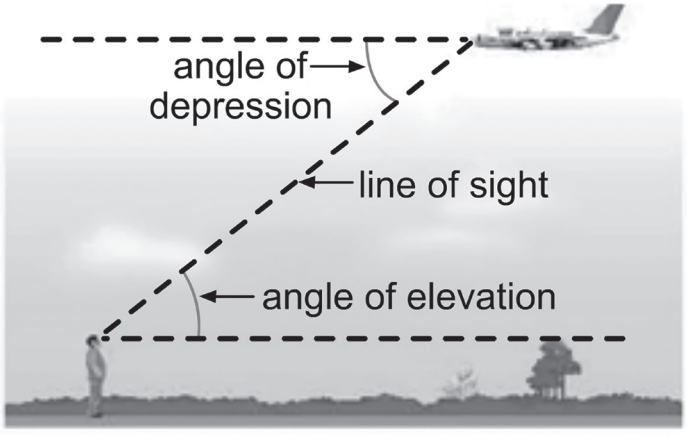
English

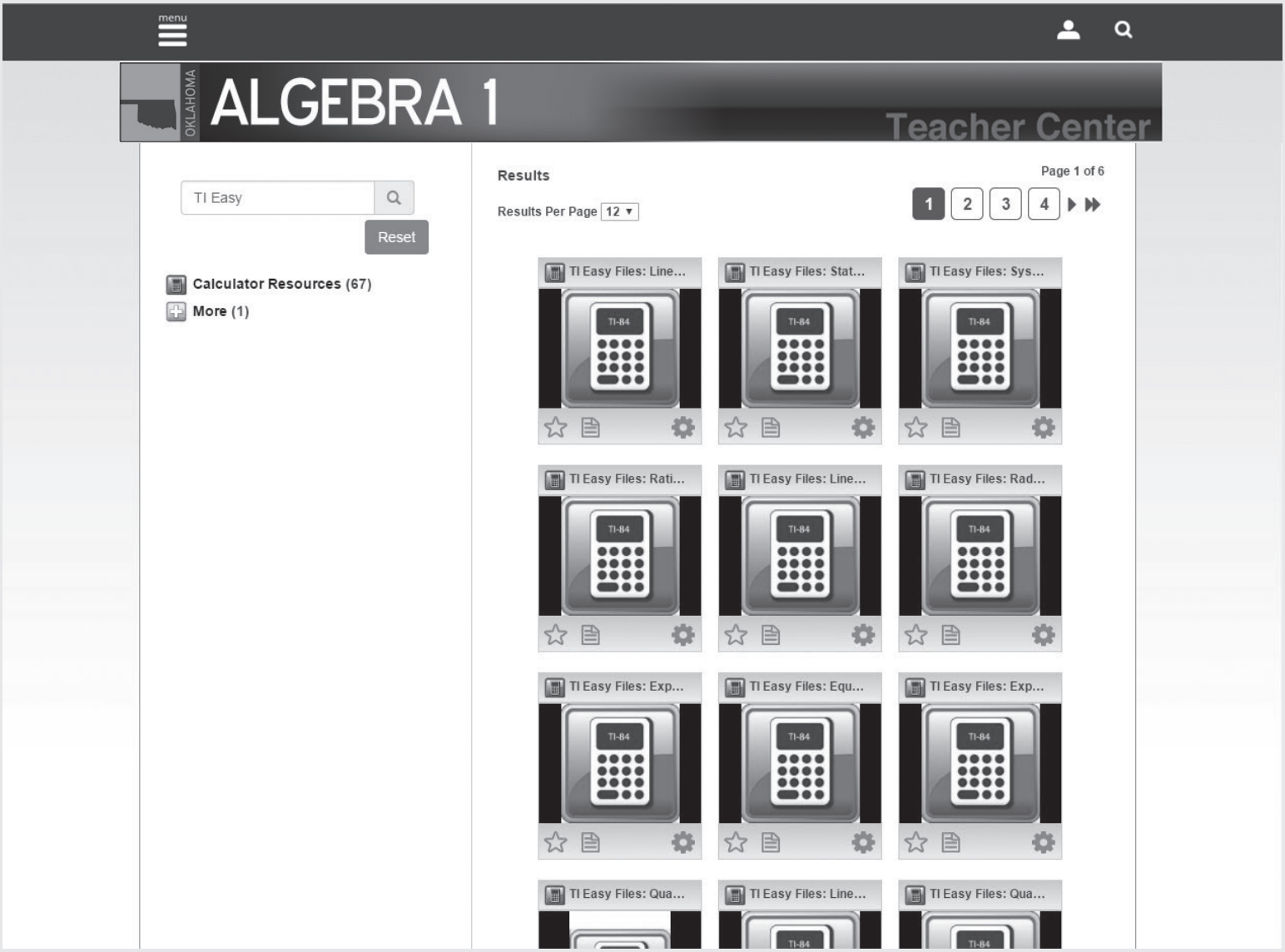
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

All

angle of elevation
angle of rotation
apothem
arc
area
auxiliary line
axiom
axis
axis of symmetry
base angle of an isosceles triangle
base edges

angle of elevation **(p. 574)** The angle between the line of sight and the horizontal when an observer looks upward.





TI Easy Files

TI Easy Files - TI-Nspire™ or TI 83/84 family calculator resource files.

Explore Slope

What happens when you change the values of x_1, y_1, x_2, and y_2?

x_1: -3.3

y_1: -1.4

x_2: 1.5

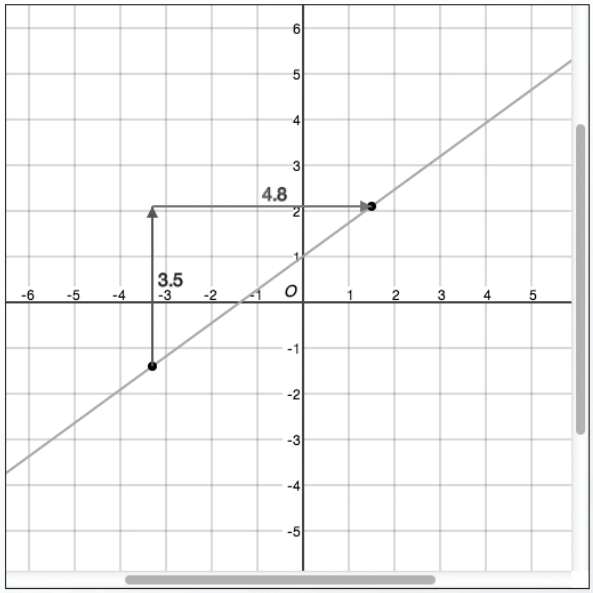
y_2: 2.1

Show the rise and run.

Rise = $y_2 - y_1$ = 2.1 - (-1.4) = 3.5

Run = $x_2 - x_1$ = 1.5 - (-3.3) = 4.8

Reset



Explore Reciprocal Functions

How does changing the values of a, h, and k affect the graph?

$$y = \frac{a}{(x - h)} + k$$

$$y = \frac{3.7}{(x - (-0.6))} + 2.1$$

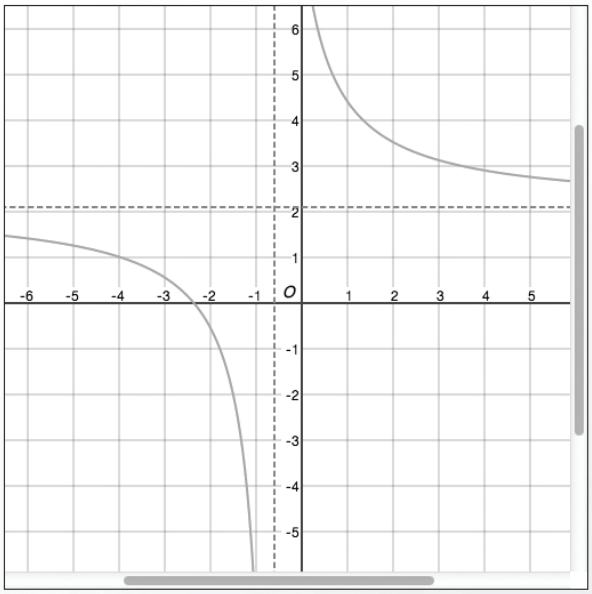
a: 3.7

h: -0.6

k: 2.1

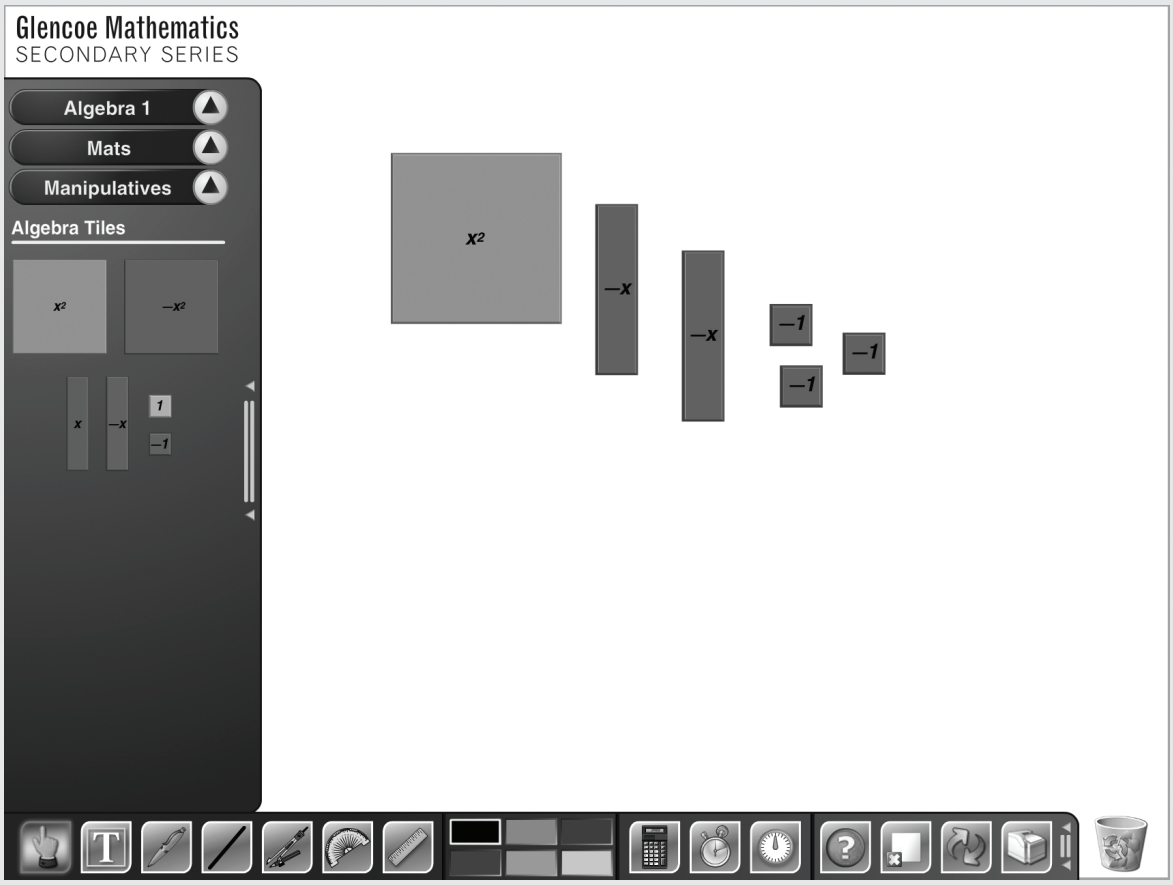
Show the asymptote(s).

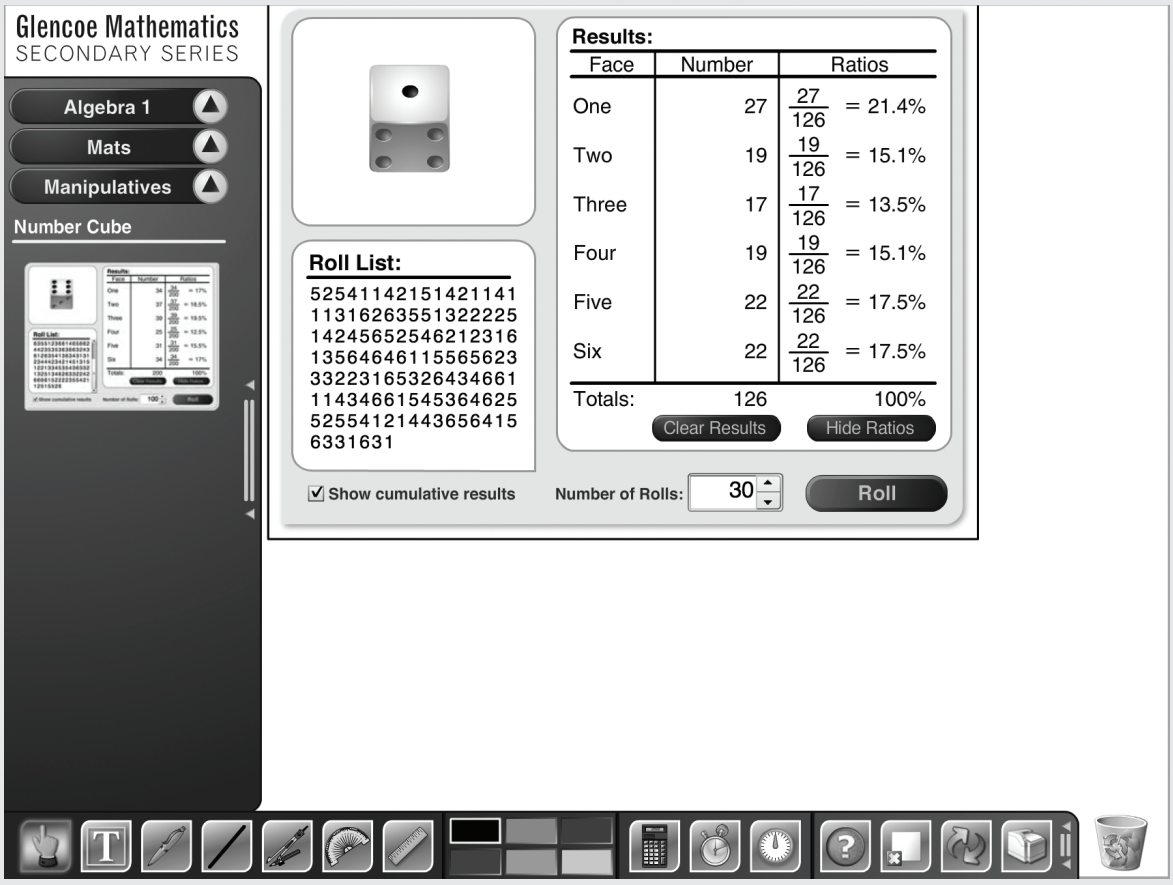
Reset



Graphing Tool

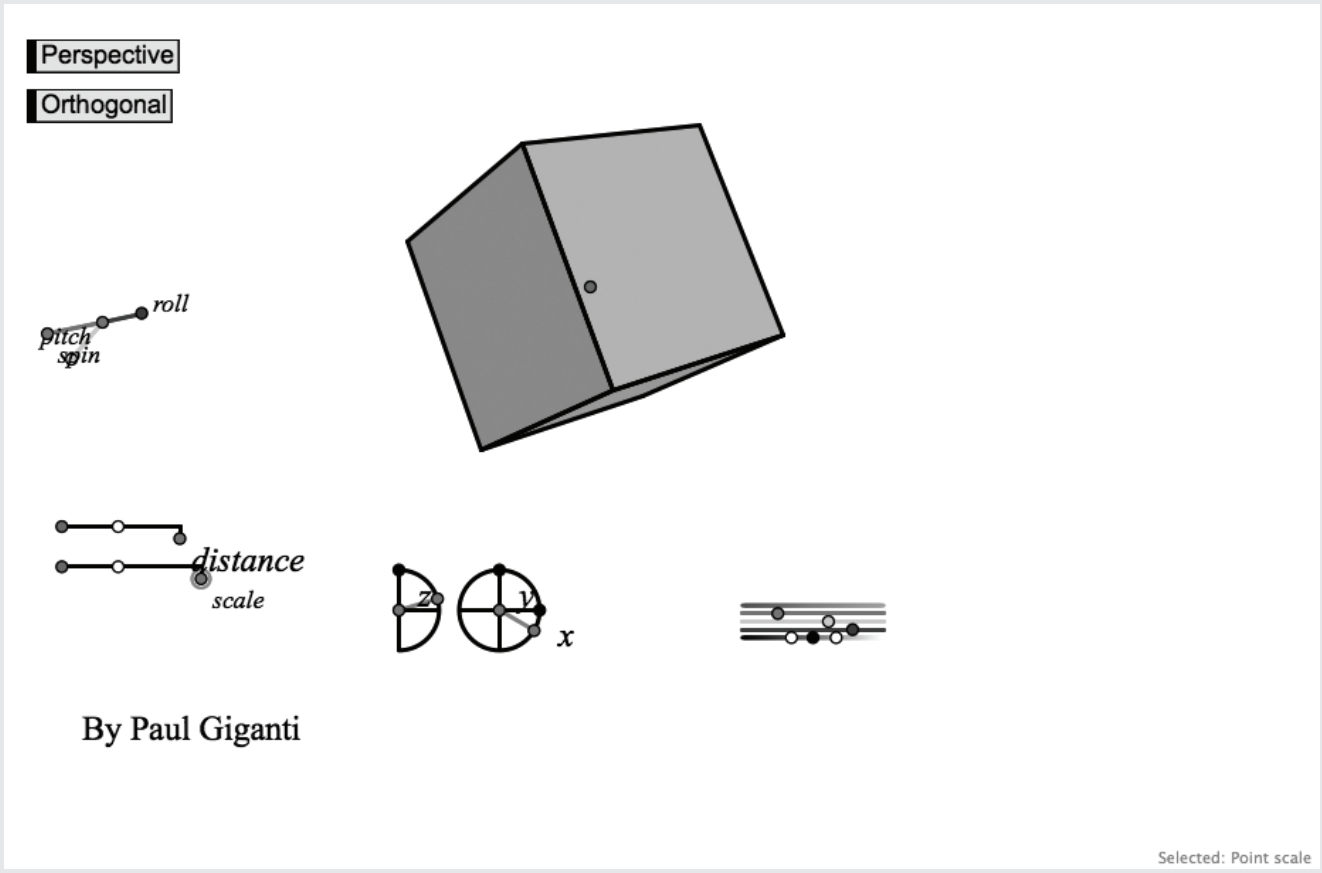
Use the Graphing Tools to investigate the effect that changing variables has on the graph of the function

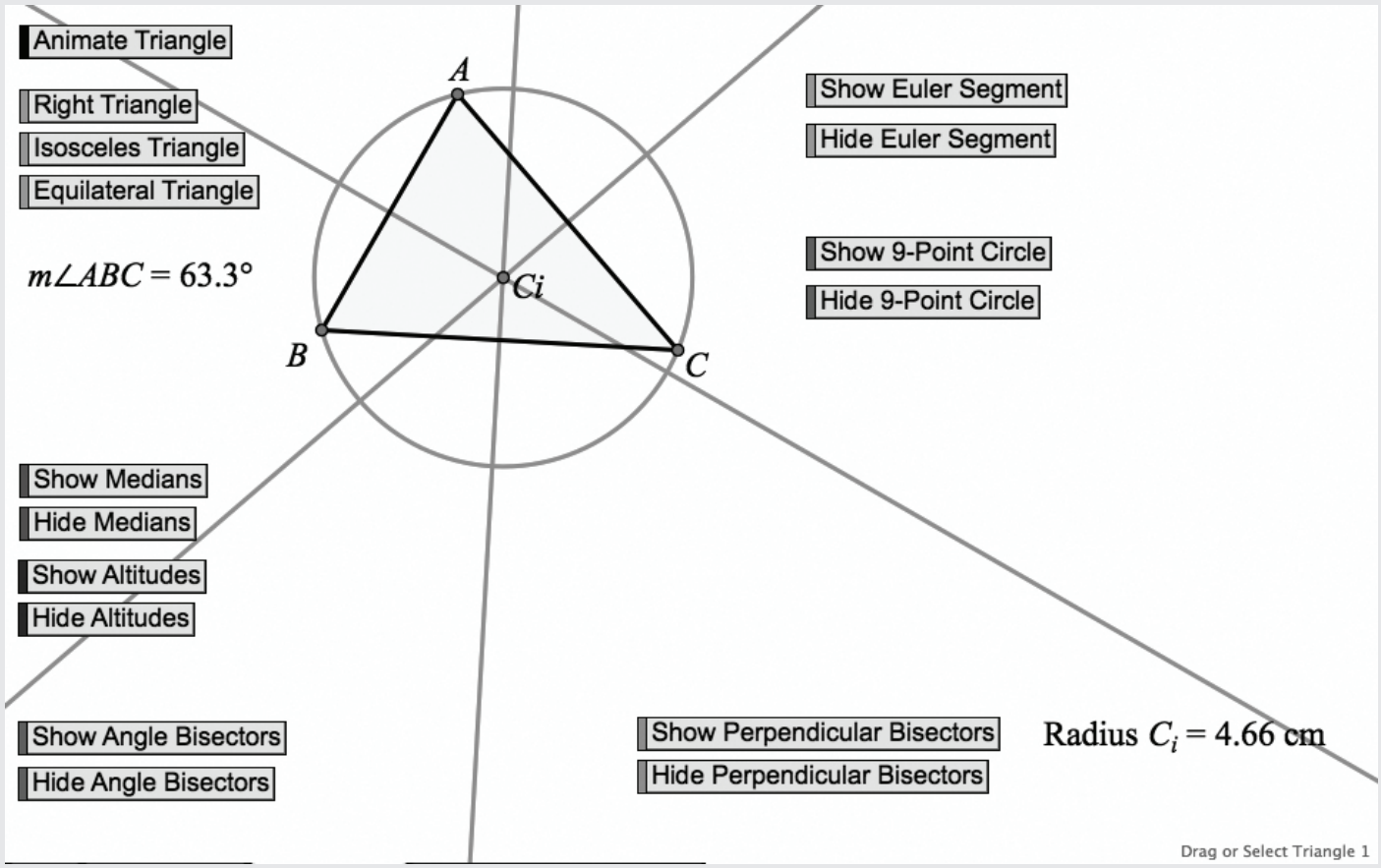




eToolkit

The eToolkit provides students with a digital way to explore concepts and teachers with a way to create problem-based learning opportunities.





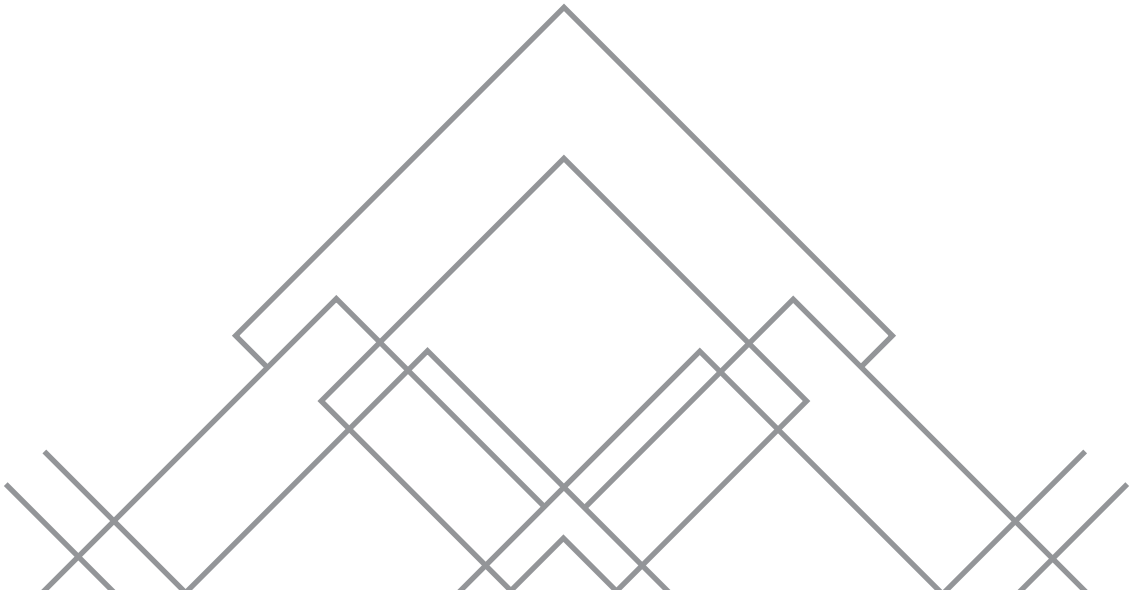
The Geometer's Sketchpad®

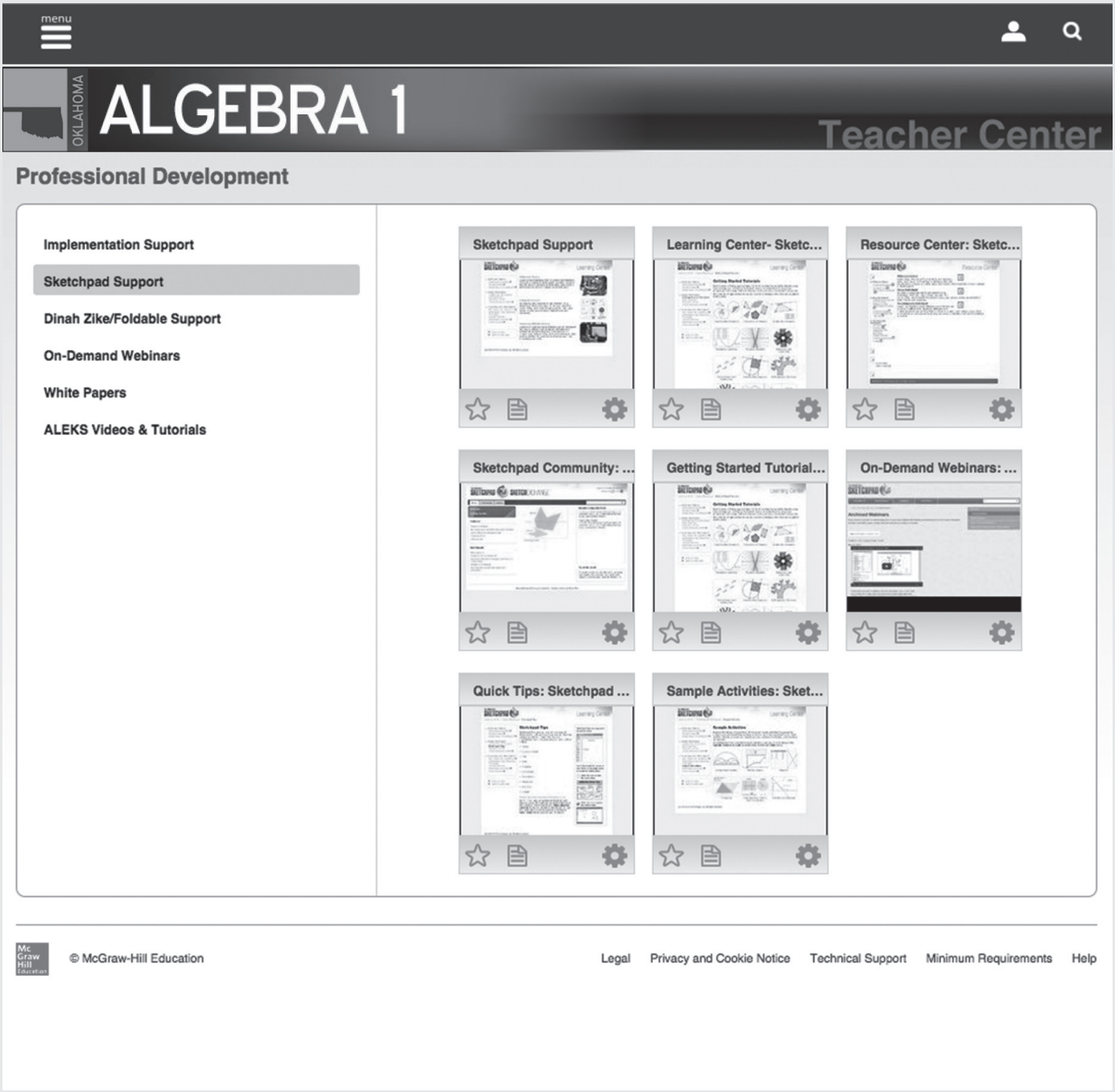
Materials required for The Geometer's Sketchpad® activities.

Professional Development

Learning for You

Teachers need to become students from time to time and we are here to help. With ever changing technology, built-in resources featuring best-practices, implementation support, alternative teaching practices, and much more makes staying up-to-date with changing classroom and student needs easier for you.





Professional Development

On-demand webinars are available to you at point-of-use from the ConnectED Teacher Center dashboard.

mheonline.com/Oklahoma

SB.1012345