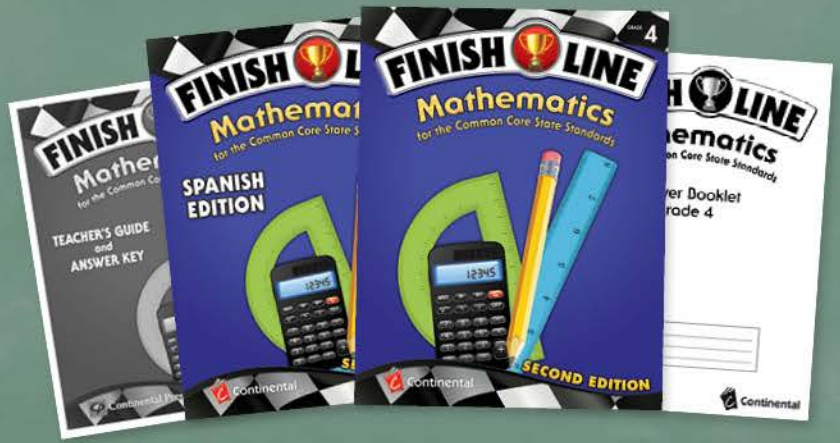
FINISH LINE

Mathematics

for the Common Core State Standards, Second Edition



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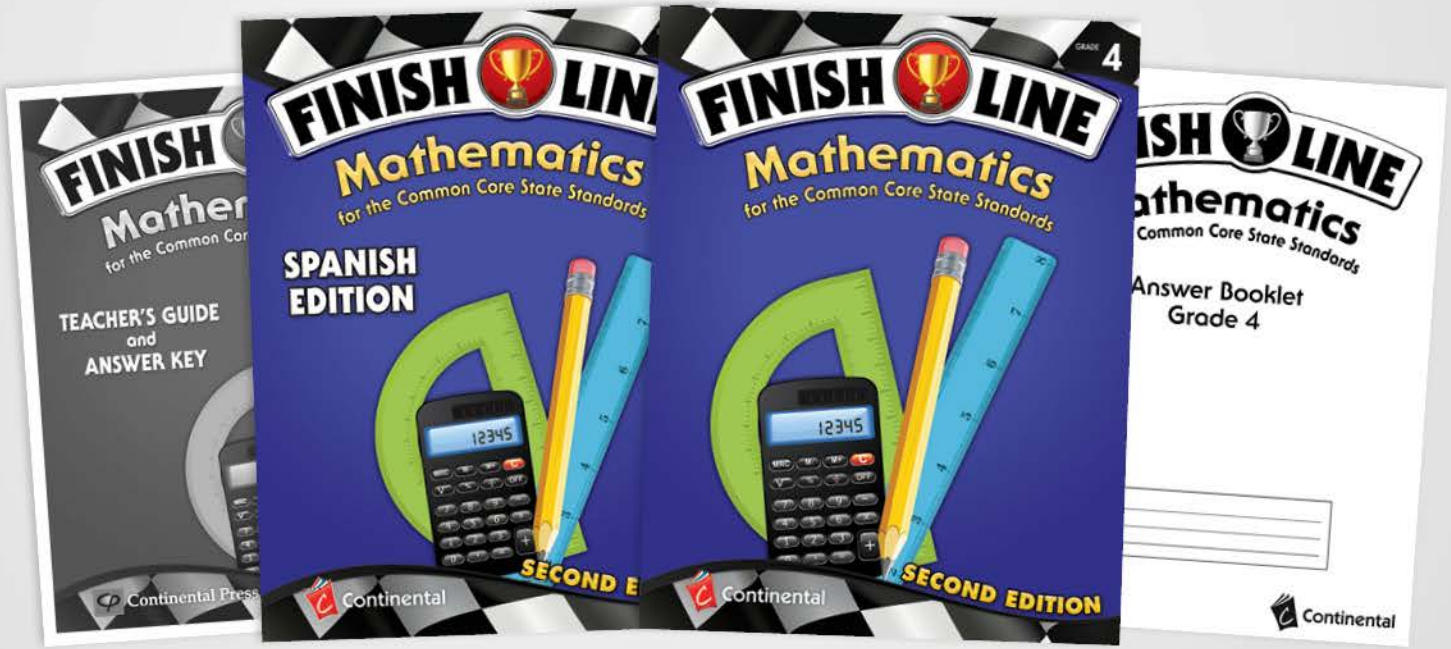
Grades 1–8

What does this series do?

Finish Line Mathematics for the Common Core State Standards, Second Edition provides instruction and reinforcement to help students become proficient with today's math requirements. Components include student workbooks, student answer booklets, and teacher's guides with answer keys.



Books available

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The *Finish Line*/Common Core Connection

The Common Core states that math mastery is accompanied by the development of the NCTM process skills found in the Standards for Mathematical Practice. *Finish Line's* instructional lessons are modeled after this approach.

- Communication
- Connections
- Representation
- Reasoning and proof
- Problem solving

eBooks available

Grades 1–8

STUDENT BOOK

Connections to Common Core

Books are organized by the domains of the Common Core. Lessons in each grade-level book are aligned to the specific K–12 Standards for that grade.

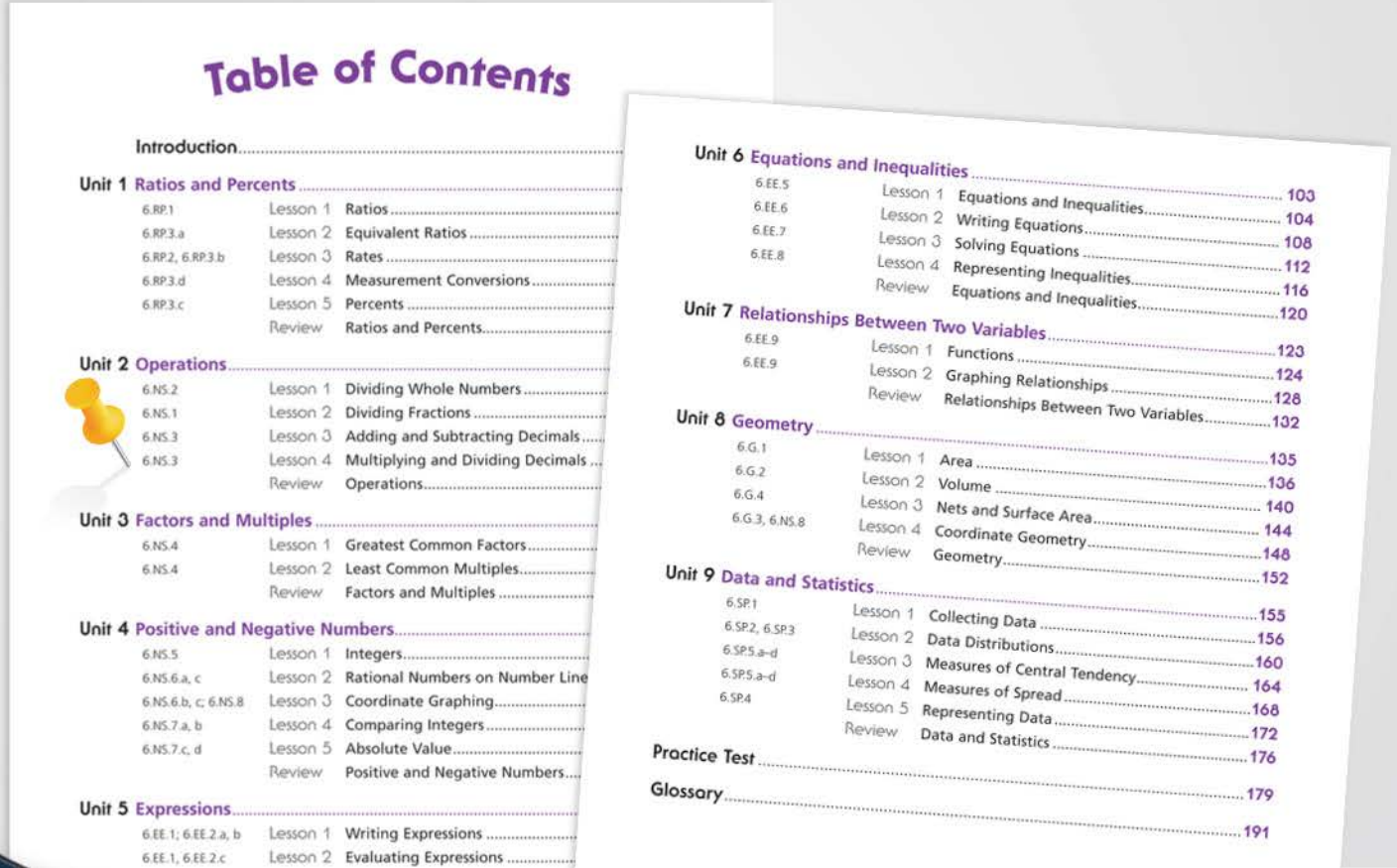


Table of Contents

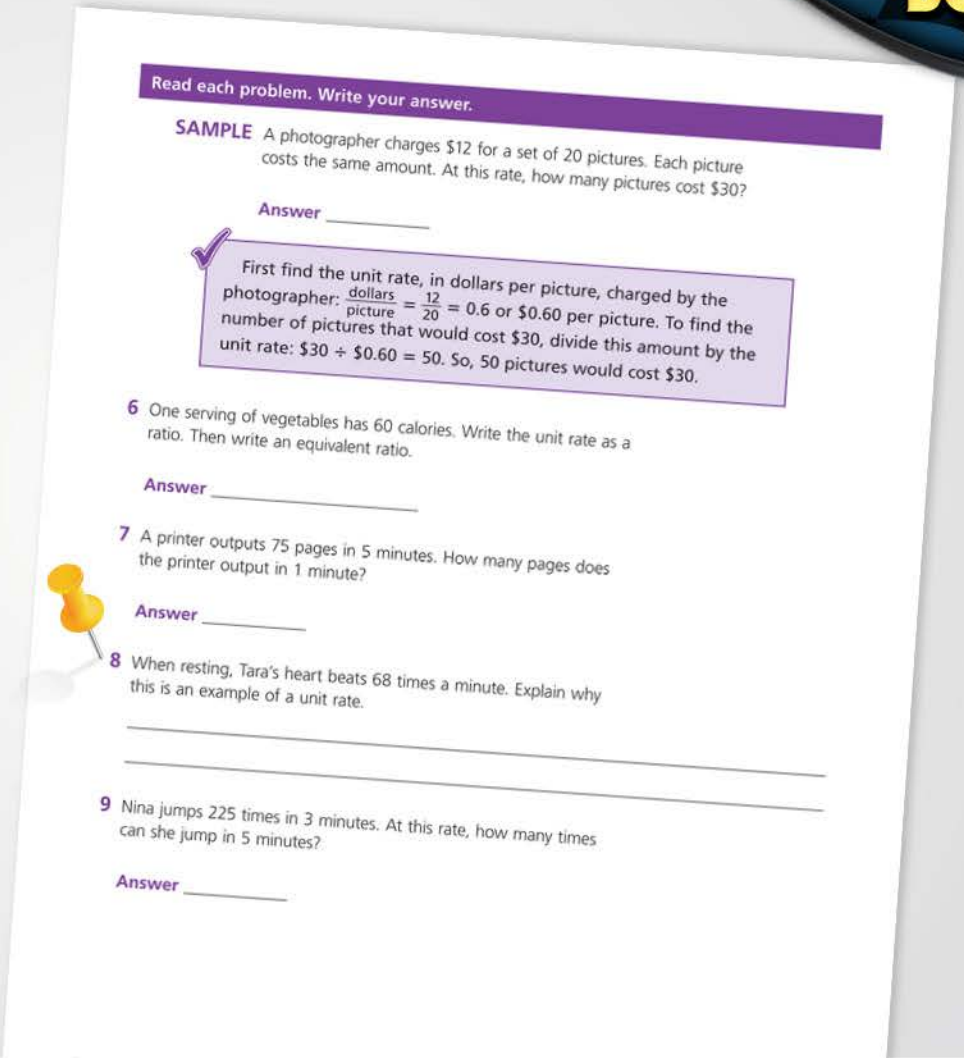
Grade 6 shown

STUDENT BOOK

Connections to Common Core

Communication

Communication (explanations, justifications, etc.) of mathematical ideas and of reasoning (may involve modeling)



Read each problem. Write your answer.

SAMPLE A photographer charges $12 for a set of 20 pictures. Each picture costs the same amount. At this rate, how many pictures cost $30?

Answer _____

First find the unit rate, in dollars per picture, charged by the photographer: $\frac{\text{dollars}}{\text{picture}} = \frac{12}{20} = 0.6$ or $0.60 per picture. To find the number of pictures that would cost $30, divide this amount by the unit rate: $30 ÷ $0.60 = 50. So, 50 pictures would cost $30.

6 One serving of vegetables has 60 calories. Write the unit rate as a ratio. Then write an equivalent ratio.

Answer _____

7 A printer outputs 75 pages in 5 minutes. How many pages does the printer output in 1 minute?

Answer _____

8 When resting, Tara's heart beats 68 times a minute. Explain why this is an example of a unit rate.

_____

_____

9 Nina jumps 225 times in 3 minutes. At this rate, how many times can she jump in 5 minutes?

Answer _____

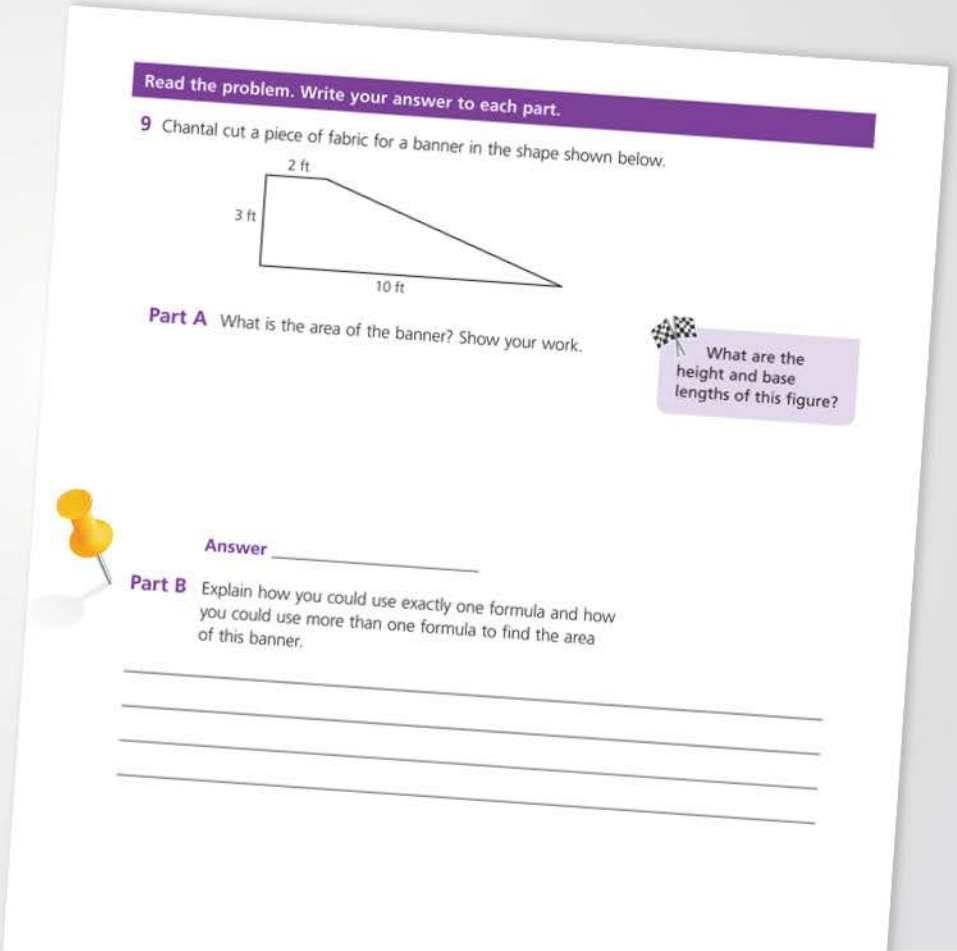
Grade 6 shown

STUDENT BOOK

Connections to Common Core

Connections

Making connections between mathematical ideas (looking for structure, identifying patterns, applying rules to specific situations and deriving rules from specific examples) and/or ideas and real-life situations



Read the problem. Write your answer to each part.

9 Chantal cut a piece of fabric for a banner in the shape shown below.

Part A What is the area of the banner? Show your work.

What are the height and base lengths of this figure?

Answer _____

Part B Explain how you could use exactly one formula and how you could use more than one formula to find the area of this banner.

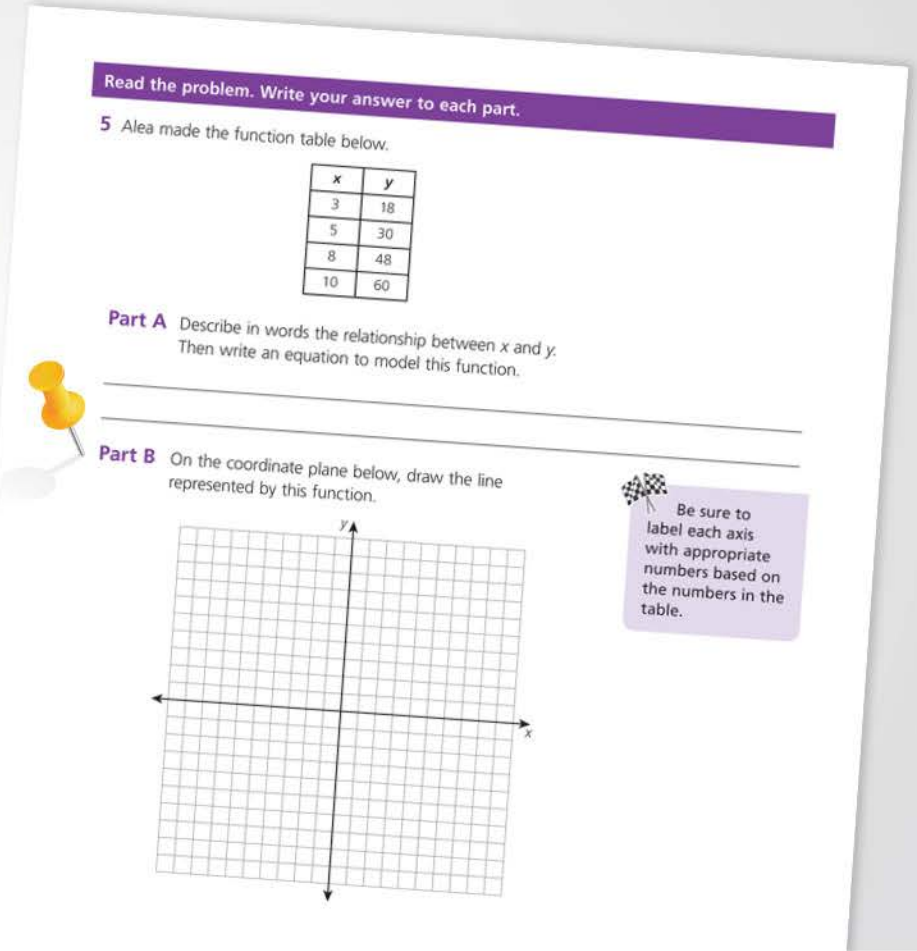
Grade 6 shown

STUDENT BOOK

Connections to Common Core

Representation

Representation of mathematical ideas (modeling with drawing, diagrams, graphs, words, (e.g. writing a representative word problem for a specific equation), equations



Read the problem. Write your answer to each part.

5 Alea made the function table below.

x	y
3	18
5	30
8	48
10	60

Part A Describe in words the relationship between *x* and *y*. Then write an equation to model this function.

Part B On the coordinate plane below, draw the line represented by this function.

Be sure to label each axis with appropriate numbers based on the numbers in the table.

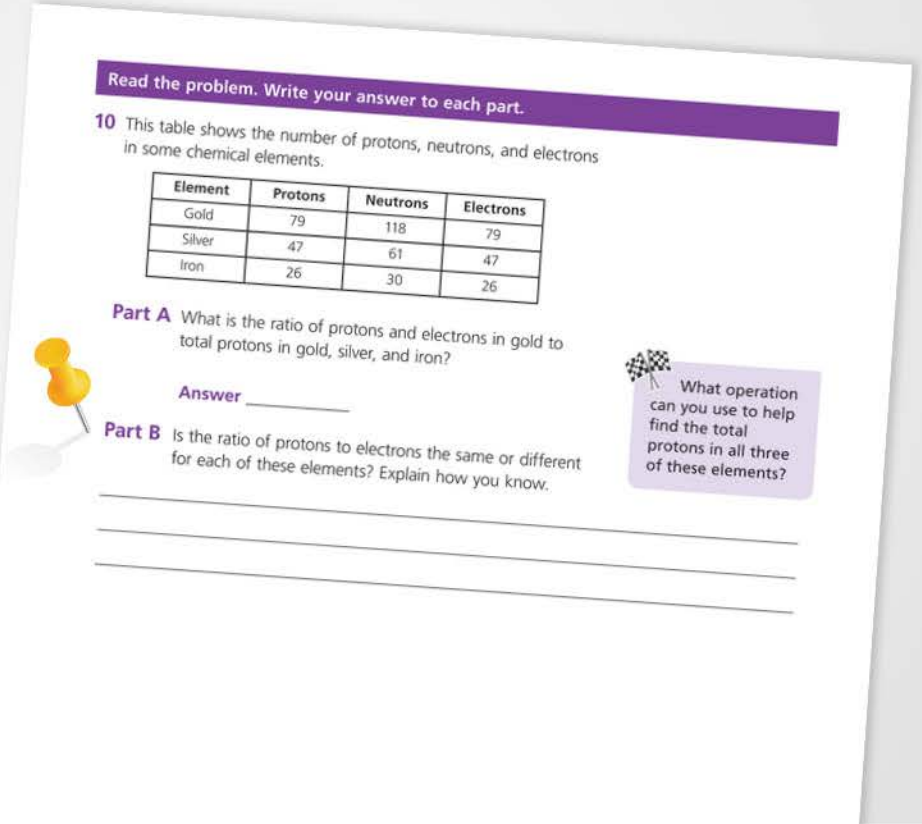
Grade 6 shown

STUDENT BOOK

Connections to Common Core

Reasoning and Proof

Reasoning and proof (this is the primary higher-order thinking skill) to draw conclusions, make predictions, and support them



Read the problem. Write your answer to each part.

10 This table shows the number of protons, neutrons, and electrons in some chemical elements.

Element	Protons	Neutrons	Electrons
Gold	79	118	79
Silver	47	61	47
Iron	26	30	26

Part A What is the ratio of protons and electrons in gold to total protons in gold, silver, and iron?

Answer _____

What operation can you use to help find the total protons in all three of these elements?

Part B Is the ratio of protons to electrons the same or different for each of these elements? Explain how you know.

_____

_____

_____

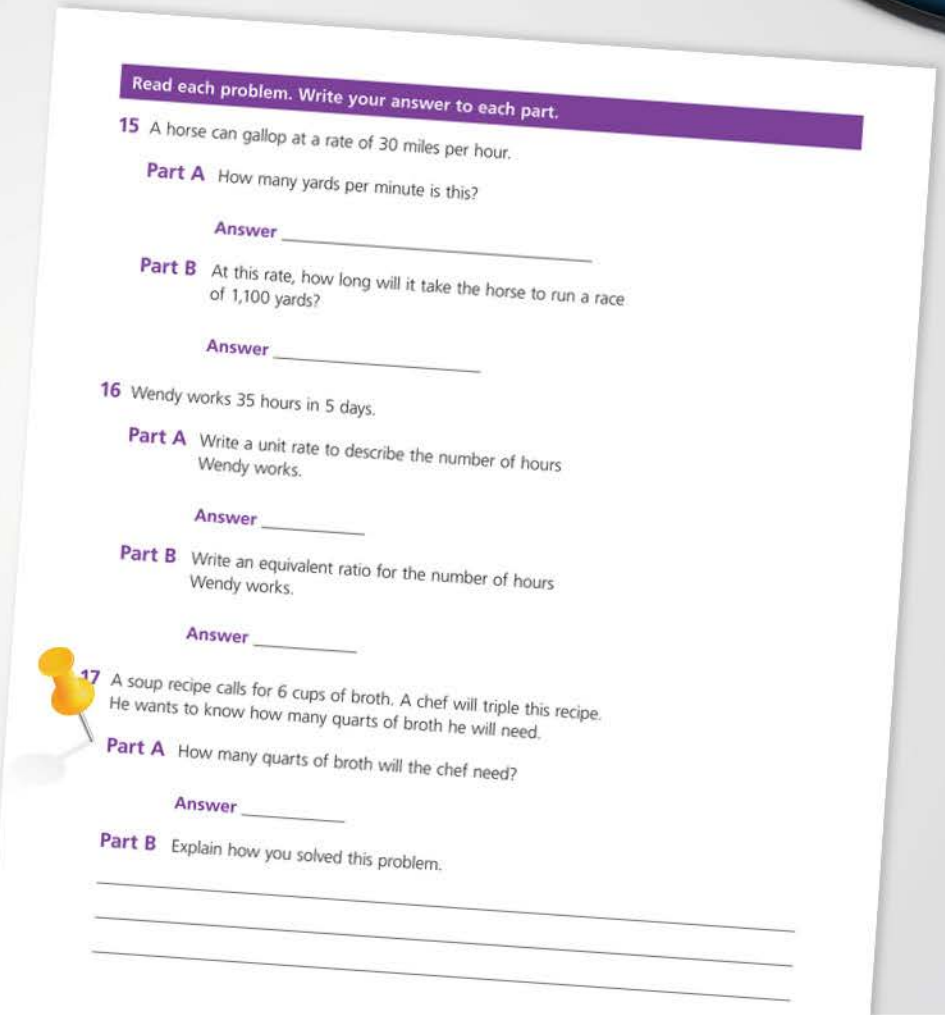
Grade 6 shown

STUDENT BOOK

Connections to Common Core

Problem Solving

Problem solving to apply skills (including higher-order reasoning) to new situations, both abstract and real life, generally involving making choices of strategies, etc.



Read each problem. Write your answer to each part.

15 A horse can gallop at a rate of 30 miles per hour.

Part A How many yards per minute is this?

Answer _____

Part B At this rate, how long will it take the horse to run a race of 1,100 yards?

Answer _____

16 Wendy works 35 hours in 5 days.

Part A Write a unit rate to describe the number of hours Wendy works.

Answer _____

Part B Write an equivalent ratio for the number of hours Wendy works.

Answer _____

17 A soup recipe calls for 6 cups of broth. A chef will triple this recipe. He wants to know how many quarts of broth he will need.

Part A How many quarts of broth will the chef need?

Answer _____

Part B Explain how you solved this problem.

_____

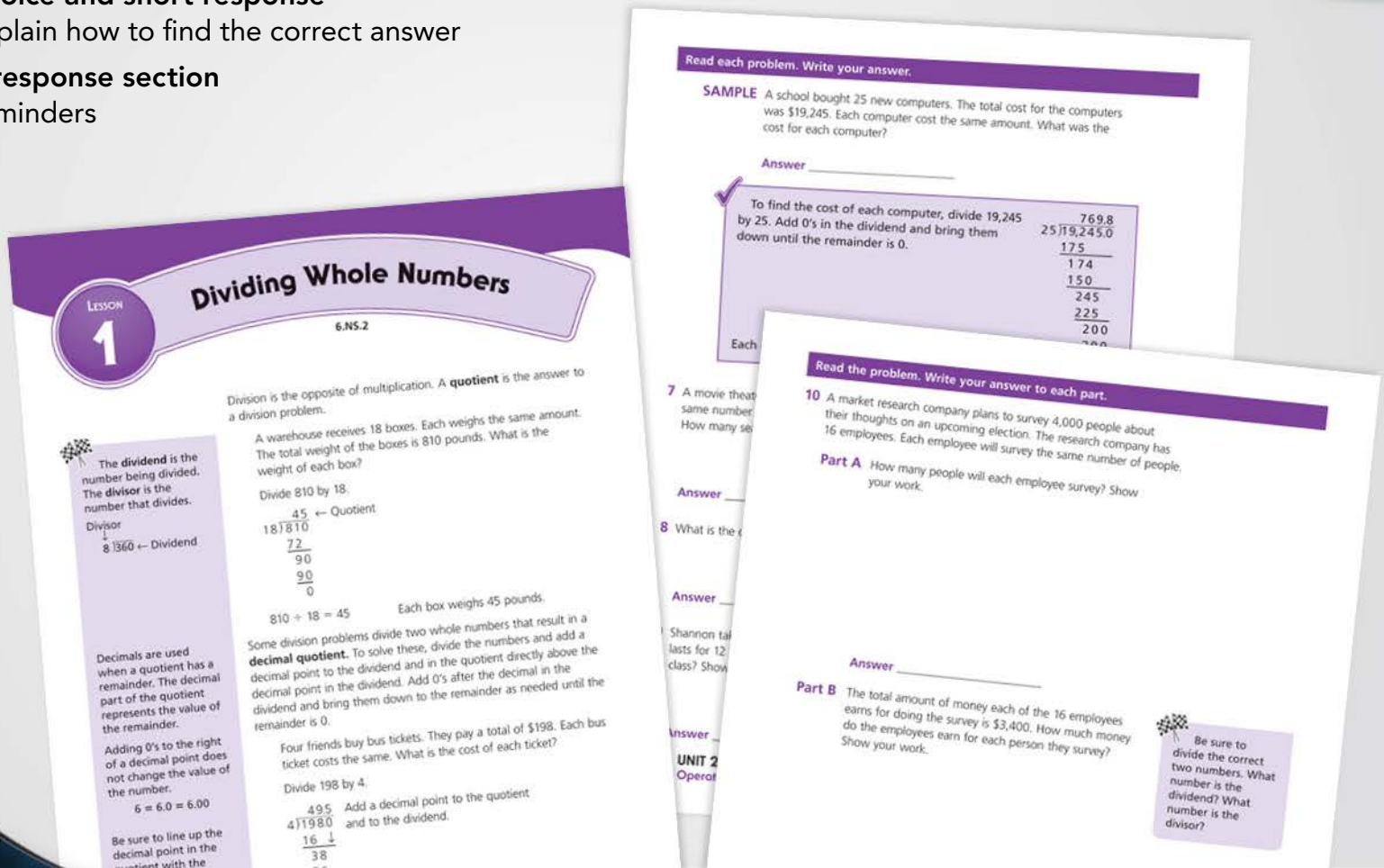
_____

_____

Grade 6 shown

Same *Finish Line* Features You Know

- **Instruction**
- **Multiple choice and short response**
  Samples explain how to find the correct answer
- **Extended-response section**
  Tips and reminders



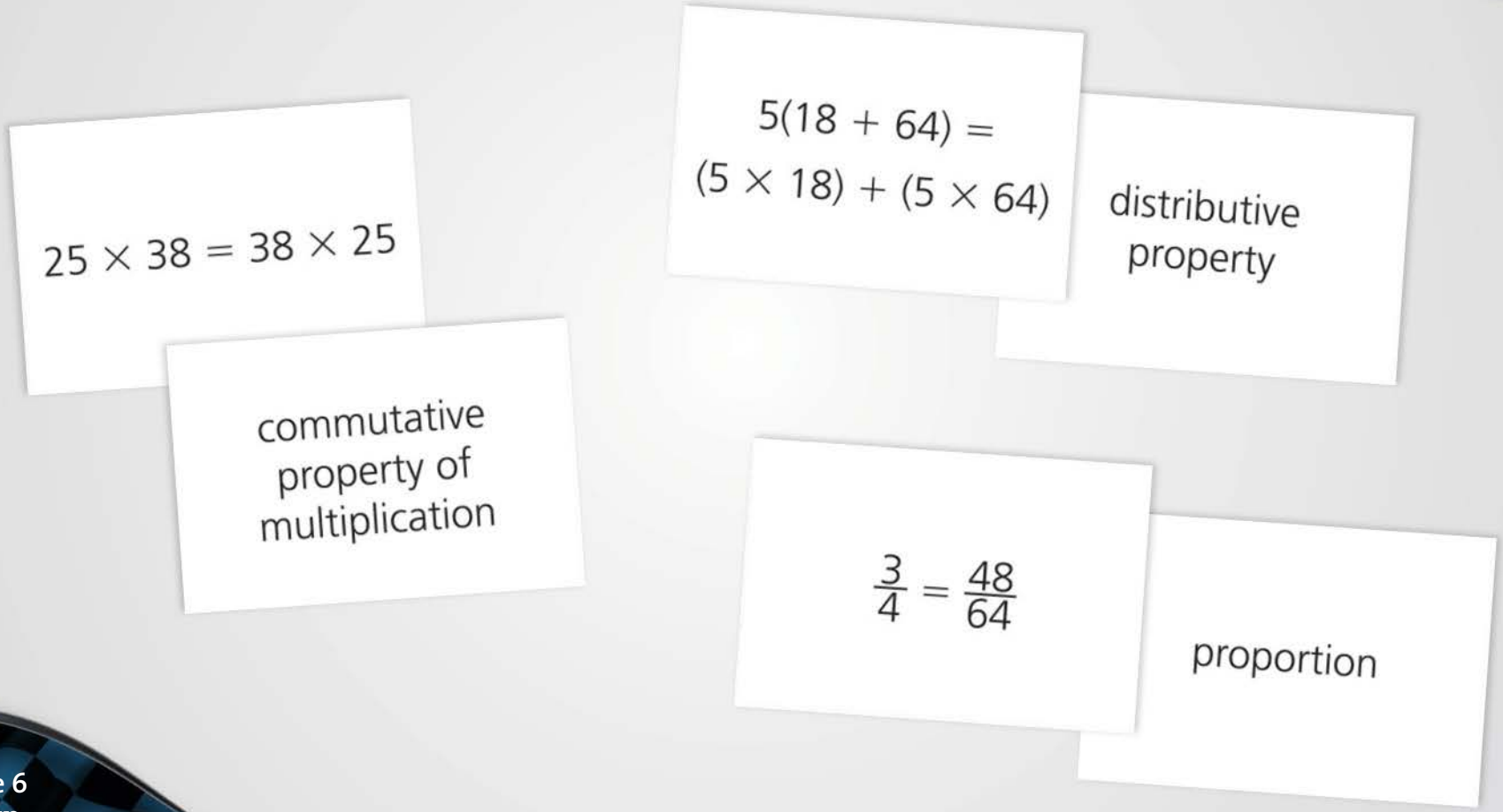
Grade 6 shown

STUDENT BOOK

STUDENT BOOK

Flashcards

Included in the English language workbooks

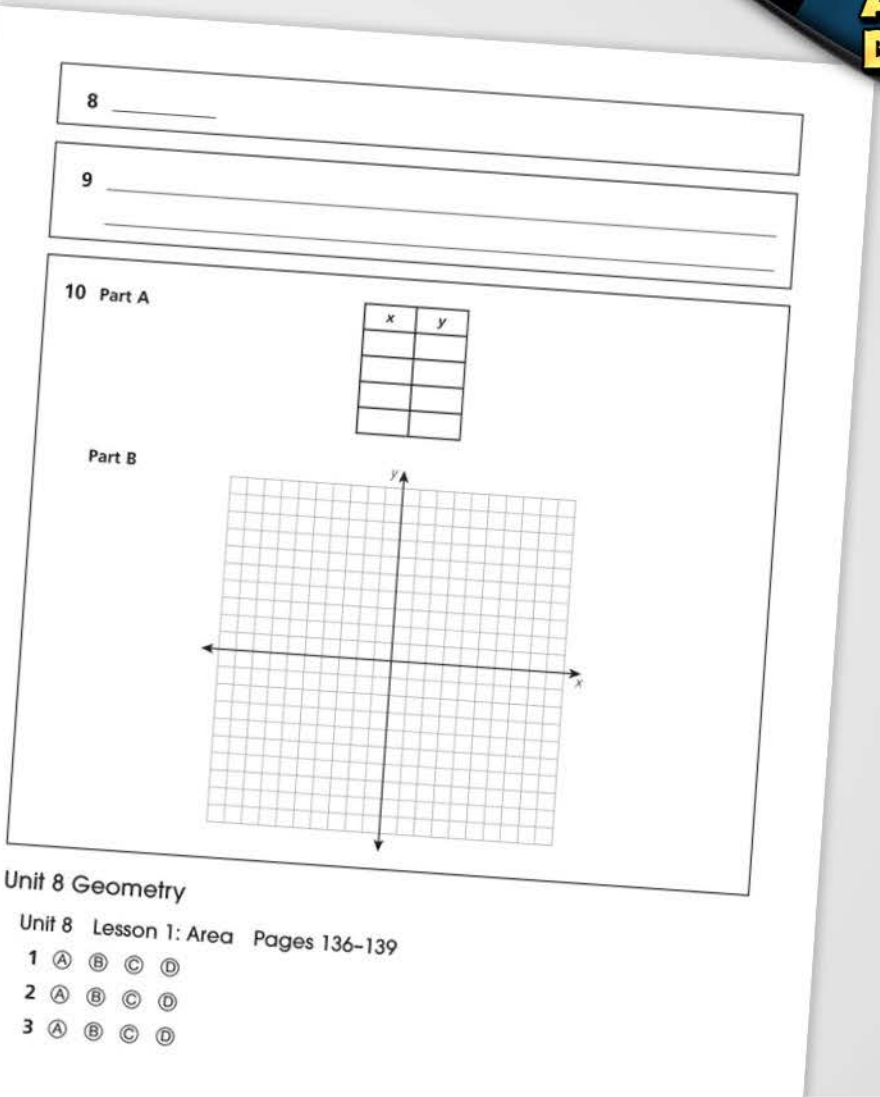


Grade 6 shown

Reuse your workbooks year after year.

Use with English and Spanish language workbooks.

STUDENT ANSWER BOOKLET


8

9

10 Part A

x	y

Part B

Unit 8 Geometry

Unit 8 Lesson 1: Area Pages 136–139

1 Ⓐ Ⓑ Ⓒ Ⓓ

2 Ⓐ Ⓑ Ⓒ Ⓓ

3 Ⓐ Ⓑ Ⓒ Ⓓ

Grade 6 shown

Teaching Support, Answer Keys, and More

Use guides with English and Spanish language workbooks.

TEACHER'S GUIDE

Contents

Common Core State Standards

TEACHER'S GUIDE

Common Core State Standards for Mathematics, Grade 6

Ratios and Proportional Relationships 6.RP

Understand ratio concepts and use ratio reasoning to solve problems.

1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2 : 1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*
2. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*
3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
   a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
   b. Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*
   c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
   d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

The Number System 6.NS

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions

Skill Analysis for Practice Test
MC = Multiple Choice = 1 pt
CR = Constructed Response = up to 2 pt
ER = Extended Response = up to 3 pt

Student Name	Ratios and Proportional Relationships MC: #2, 3, 8, 19, 20 CR: #31, 35, 37, 39, 40, 43 *17 points possible*	Number Sense MC: #1, 4, 6, 7, 10, 12, 15, 16, 30 CR: #32, 34, 36, 41 ER: #51, 52 *23 points possible*	Expressions and Equations MC: #9, 11, 13, 14, 17, 18, 21, 22, 24, 25, 26, 27 CR: #33, 44, 47, 48, 49 ER: #53 *25 points possible*	Geometry MC: #23, 28 CR: #38, 42, 45 *8 points possible*	Statistics and Probability MC: #5, 29 CR: #46, 50 *6 points possible*	TOTAL SCORE *79 points possible*

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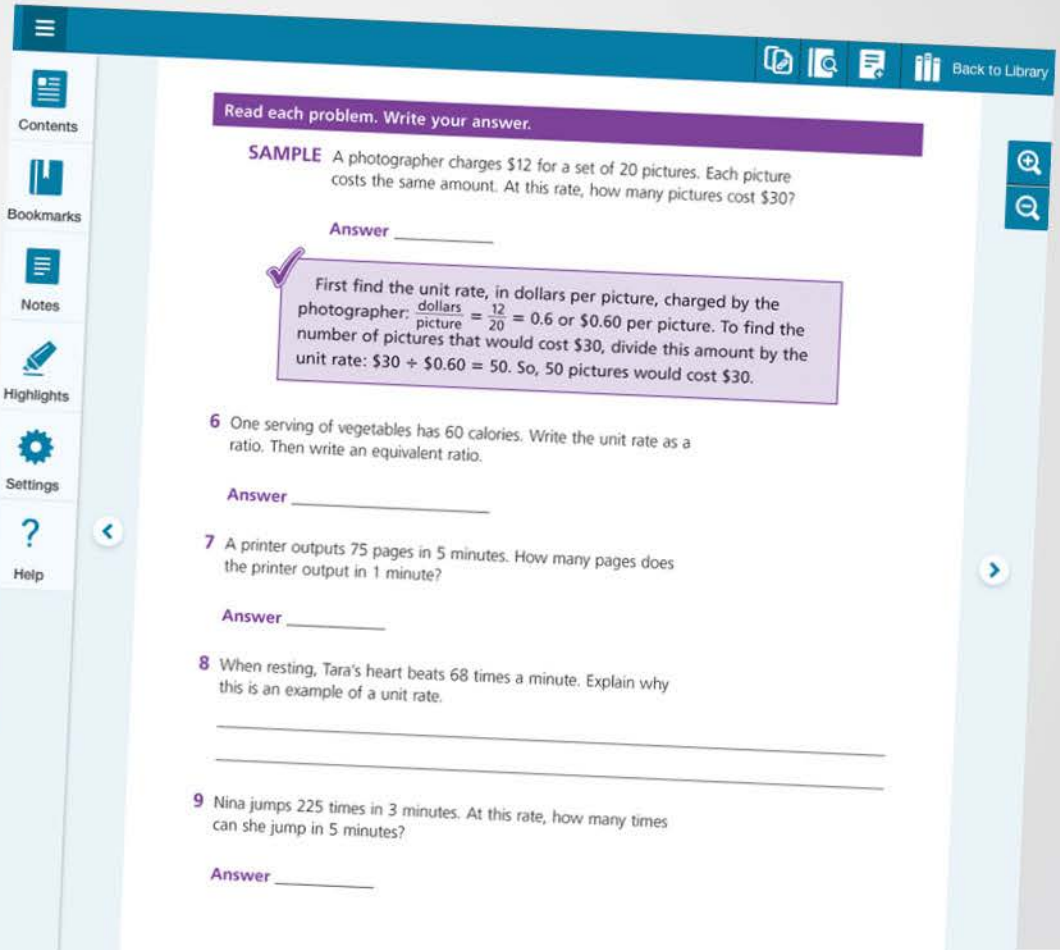

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