

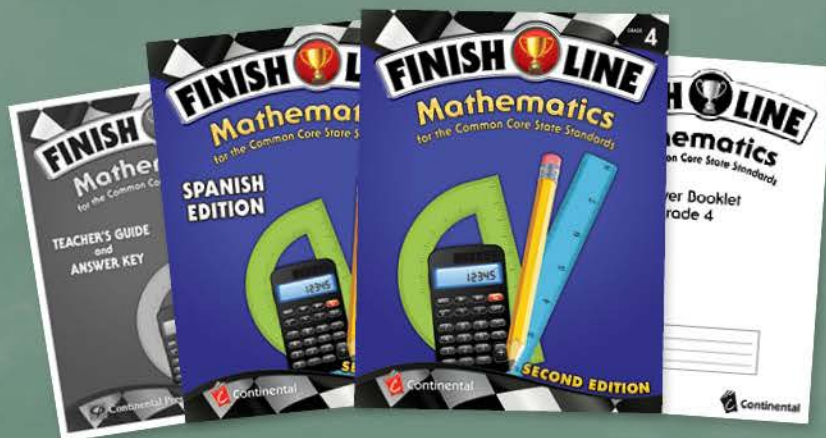
FINISH LINE

Mathematics

for the Common Core State Standards, Second Edition



Continental
inspire every learner



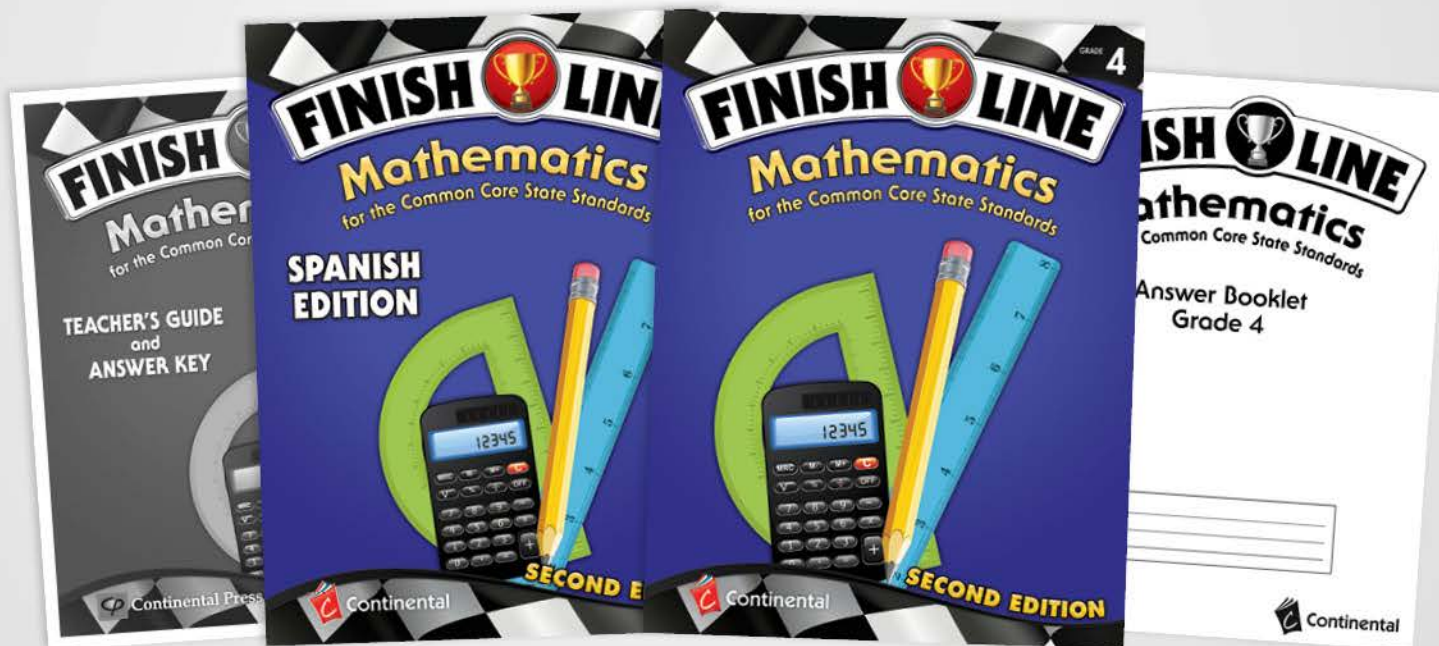
e
Books
available

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.



Grades 1–8

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



Grades 1–8



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

Introduction.....

Unit 1 Ratios and Percents.....

6.RP.1	Lesson 1	Ratios.....	103
6.RP.3.a	Lesson 2	Equivalent Ratios.....	104
6.RP.2, 6.RP.3.b	Lesson 3	Rates.....	108
6.RP.3.d	Lesson 4	Measurement Conversions.....	112
6.RP.3.c	Lesson 5	Percents.....	116
	Review	Ratios and Percents.....	120

Unit 2 Operations.....

6.NS.2	Lesson 1	Dividing Whole Numbers.....	123
6.NS.1	Lesson 2	Dividing Fractions.....	124
6.NS.3	Lesson 3	Adding and Subtracting Decimals.....	128
6.NS.3	Lesson 4	Multiplying and Dividing Decimals.....	132
	Review	Operations.....	

Unit 3 Factors and Multiples.....

6.NS.4	Lesson 1	Greatest Common Factors.....	135
6.NS.4	Lesson 2	Least Common Multiples.....	136
	Review	Factors and Multiples.....	140

Unit 4 Positive and Negative Numbers.....

6.NS.5	Lesson 1	Integers.....	144
6.NS.6.a, c	Lesson 2	Rational Numbers on Number Line.....	148
6.NS.6.b, c; 6.NS.8	Lesson 3	Coordinate Graphing.....	152
6.NS.7.a, b	Lesson 4	Comparing Integers.....	156
6.NS.7.c, d	Lesson 5	Absolute Value.....	168
	Review	Positive and Negative Numbers.....	172

Unit 5 Expressions.....

6.EE.1; 6.EE.2.a, b	Lesson 1	Writing Expressions.....	176
6.EE.1, 6.EE.2.c	Lesson 2	Evaluating Expressions.....	177

Unit 6 Equations and Inequalities.....

6.EE.5	Lesson 1	Equations and Inequalities.....	103
6.EE.6	Lesson 2	Writing Equations.....	104
6.EE.7	Lesson 3	Solving Equations.....	108
6.EE.8	Lesson 4	Representing Inequalities.....	112
	Review	Equations and Inequalities.....	116

Unit 7 Relationships Between Two Variables.....

6.EE.9	Lesson 1	Functions.....	123
6.EE.9	Lesson 2	Graphing Relationships.....	124
	Review	Relationships Between Two Variables.....	128

Unit 8 Geometry.....

6.G.1	Lesson 1	Area.....	135
6.G.2	Lesson 2	Volume.....	136
6.G.4	Lesson 3	Nets and Surface Area.....	140
6.G.3, 6.NS.8	Lesson 4	Coordinate Geometry.....	144
	Review	Geometry.....	148

Unit 9 Data and Statistics.....

6.SP.1	Lesson 1	Collecting Data.....	155
6.SP.2, 6.SP.3	Lesson 2	Data Distributions.....	156
6.SP.5.a–d	Lesson 3	Measures of Central Tendency.....	160
6.SP.5.a–d	Lesson 4	Measures of Spread.....	164
6.SP.4	Lesson 5	Representing Data.....	168
	Review	Data and Statistics.....	172

Practice Test.....

Glossary.....	179
	191

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: $\$30 \div \$0.60 = 50$. 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?

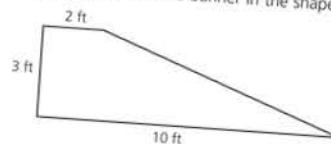
Answer _____

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.

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

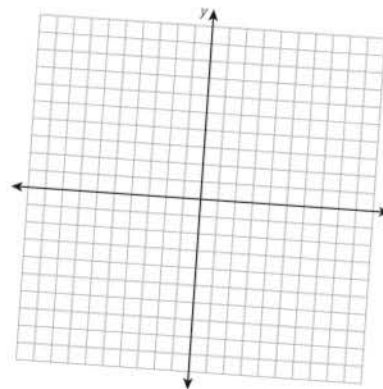
Read the problem. Write your answer to each part.

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.

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 _____

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

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

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.

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

LESSON

1

Dividing Whole Numbers

6.NS.2

Division is the opposite of multiplication. A **quotient** is the answer to a division problem.

A warehouse receives 18 boxes. Each weighs the same amount. The total weight of the boxes is 810 pounds. What is the weight of each box?

Divide 810 by 18.

$$\begin{array}{r} 45 \leftarrow \text{Quotient} \\ 18 \overline{)810} \\ \underline{72} \\ 90 \\ \underline{90} \\ 0 \end{array}$$

$810 \div 18 = 45$ Each box weighs 45 pounds.

Some division problems divide two whole numbers that result in a **decimal quotient**. To solve these, divide the numbers and add a decimal point to the dividend and in the quotient directly above the decimal point in the dividend. Add 0's after the decimal in the dividend and bring them down to the remainder as needed until the remainder is 0.

Four friends buy bus tickets. They pay a total of \$198. Each bus ticket costs the same. What is the cost of each ticket?

Divide 198 by 4.

$$\begin{array}{r} 49.5 \\ 4 \overline{)198.0} \\ \underline{16} \\ 38 \\ \underline{36} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

Add a decimal point to the quotient and to the dividend.

The **dividend** is the number being divided. The **divisor** is the number that divides.

Divisor \downarrow

8 $\overline{)360}$ \leftarrow Dividend

Decimals are used when a quotient has a remainder. The decimal part of the quotient represents the value of the remainder.

Adding 0's to the right of a decimal point does not change the value of the number.

$6 = 6.0 = 6.00$

Be sure to line up the decimal point in the quotient with the

Read each problem. Write your answer.

SAMPLE A school bought 25 new computers. The total cost for the computers was \$19,245. Each computer cost the same amount. What was the cost for each computer?

Answer _____

To find the cost of each computer, divide 19,245 by 25. Add 0's in the dividend and bring them down until the remainder is 0.

$$\begin{array}{r} 769.8 \\ 25 \overline{)19,245.0} \\ \underline{175} \\ 174 \\ \underline{150} \\ 245 \\ \underline{225} \\ 200 \\ \underline{200} \\ 0 \end{array}$$

Read the problem. Write your answer to each part.

7 A movie theater has 120 seats. How many seats are there in each row if there are 8 rows?

Answer _____

8 What is the cost of each ticket if 120 people paid a total of \$1,200 for tickets?

Answer _____

9 Shannon tall last for 12 class? Show your work.

Answer _____

10 A market research company plans to survey 4,000 people about their thoughts on an upcoming election. The research company has 16 employees. Each employee will survey the same number of people.

Part A How many people will each employee survey? Show your work.

Answer _____

Part B The total amount of money each of the 16 employees earns for doing the survey is \$3,400. How much money do the employees earn for each person they survey? Show your work.

Answer _____

Be sure to divide the correct two numbers. What number is the dividend? What number is the divisor?

Flashcards

Included in the English language workbooks

$$25 \times 38 = 38 \times 25$$

commutative
property of
multiplication

$$5(18 + 64) = \\ (5 \times 18) + (5 \times 64)$$

distributive
property

$$\frac{3}{4} = \frac{48}{64}$$

proportion

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language workbooks.

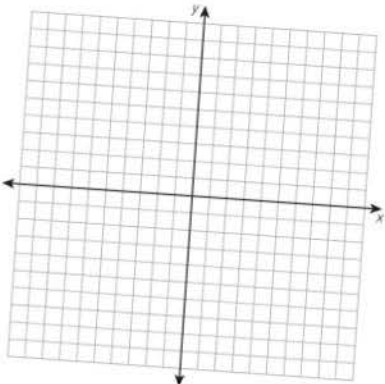
8 _____

9 _____

10 Part A

x	y

Part B



Unit 8 Geometry

Unit 8 Lesson 1: Area Pages 136–139

1 A B C D

2 A B C D

3 A B C D

Teaching Support, Answer Keys, and More

Use guides with English and Spanish language workbooks.

Contents

Introduction	3
Suggestions for Use	8
Additional Materials for Review	9
Scoring Rubric for Constructed-Response Items	10
Scoring Rubric for Extended-Response Items	10
Answer Key	
Unit 1	11
Unit 2	13
Unit 3	14
Unit 4	15
Unit 5	17
Unit 6	18
Unit 7	20
Unit 8	21
Unit 9	23
Practice Test	25
Reproducible Answer Sheets for Practice Test	27
Reproducible Answer Sheet for Multiple-Choice Items with Answer Key for Practice Test	31
Common Core State Standards for Mathematics, Grade 6	32
Reproducible Skill Analysis Chart for Practice Test	37
Reproducible Cut-Out Tools	38

Acknowledgments

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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 $\frac{3}{4}$ 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 $\frac{30}{100}$ 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

eBooks

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EBOOK



Student Tools and Notifications

With the easy-to-use tools and notifications, students can:

- Add bookmarks, notes, and highlights as they're working through their lessons.
- See teacher notifications for homework and assessment assignments, blog posts, and feedback for their assignments.
- View their eBook library.

The screenshot displays a digital textbook page with a sidebar on the left containing navigation icons for Contents, Bookmarks, Notes, Highlights, Settings, and Help. The main content area features a purple header bar with the instruction "Read each problem. Write your answer." Below this, a "SAMPLE" problem is presented: "A photographer charges \$12 for a set of 20 pictures. Each picture costs the same amount. At this rate, how many pictures cost \$30?" The answer is provided in a purple box with a checkmark icon: "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: $\$30 \div \$0.60 = 50$. So, 50 pictures would cost \$30." Below the sample problem, three numbered problems are listed: Problem 6 asks for the unit rate and an equivalent ratio for 60 calories in one serving of vegetables; Problem 7 asks for the number of pages a printer can output in 1 minute given 75 pages in 5 minutes; Problem 8 asks for an explanation of why Tara's heart rate is an example of a unit rate; and Problem 9 asks for the number of jumps Nina can make in 5 minutes given 225 jumps in 3 minutes. Each problem has a corresponding "Answer" line.

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: $\$30 \div \$0.60 = 50$. 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 _____

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Grades 1–8

