

Grades 3–8

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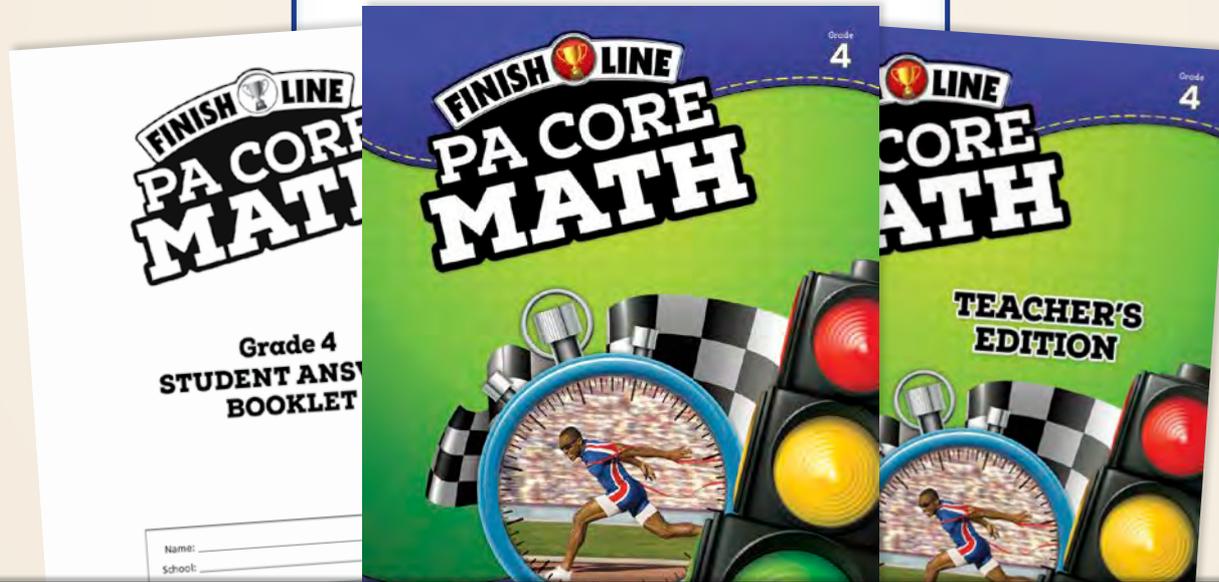


Continental
inspire every learner

What does this series do?

Finish Line PA Core Math provides instruction and practice to help students learn the Eligible Content of the Pennsylvania Core Standards and prepare for the PSSA exams. Concise, simply-presented lessons keep students focused and on task. Components include student workbooks, student answer booklets, and annotated teacher's editions.

Choose your components for easy implementation.



Grades 3–8

Standards Connection

Units parallel the domains of the Eligible Content of the Pennsylvania Core Standards.

300+ pages of instruction and practice

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Get Ready to Learn

The first unit reviews big ideas from the previous grade with four-to-five topics that are key to new concepts in the current grade. This allows students to refresh their skills in these areas before building on them to learn new ideas.

UNIT 1
Big Ideas from Grade 5

In grade 5, you learned about multiplying and dividing fractions and decimals, and solved problems with coordinate planes. Now you can use what you know about operations, algebraic thinking, and using the coordinate plane to practice multiplying fractions and decimals, analyze data on coordinate planes, and use the order of operations in verbal and numerical expressions.

LESSON 1 Multiplying Fractions In this lesson, you will convert improper fractions and mixed numbers, multiply fractions, and simplify fractions to lowest terms to solve real-world problems.

LESSON 2 Operations with Decimals In this lesson, you will examine the place value of digits within decimals, add and subtract decimals by lining up place values, and multiply and divide decimals, noting the location of the decimal point. You will also explain your reasoning when solving problems.

LESSON 3 Using a Coordinate Plane In this lesson, you will work with a coordinate plane. You will identify x-coordinates and y-coordinates, measure the distance from the x-axis and y-axis, and label points on a plane. You will also represent real-world and mathematical problems on a coordinate plane.

LESSON 4 Writing and Evaluating Expressions In this lesson, you will evaluate numerical expressions using the order of operations, and write verbal and numerical descriptions of situations. You will also use parentheses, brackets, or braces in numerical expressions.

LESSON 1
Multiplying Fractions
CC.2.1.5.C.2

1 Introduction

Fractions show parts of a whole or parts of a set. Multiplying fractions can help you solve problems with measurements, money, rates, and other types of problems.

To multiply a fraction by a fraction, multiply the numerators. Then multiply the denominators.

$$\frac{3}{4} \times \frac{1}{3} = \frac{3 \times 1}{4 \times 3} = \frac{3}{12} = \frac{1}{4}$$

You can cross out common factors to help you multiply:

$$\frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$$

To multiply a **mixed number** and a fraction or two mixed numbers, first change the mixed number to an **improper fraction**.

Multiply $1\frac{2}{3} \times \frac{3}{4}$.

Change the mixed number to an improper fraction. Multiply the denominator by the whole number. Then add the product to the numerator: $3 \times 1 = 3$; $3 + 2 = 5$. Write the sum over the original denominator: $\frac{5}{3}$.

Now multiply the fractions. Remember to cross out common factors.

2 Numerator
5 Denominator

You can cross out common factors to help you multiply:

To multiply a fraction by a whole number, first write the whole number as an improper fraction with a denominator of 1.

LESSON 3
Using a Coordinate Plane
CC.2.3.5.A.1

1 Introduction

A **decimal** is a number with one or more digits to the right of a decimal point. Each

The decimal point separates the whole number digits from the decimal digits.

When you write 0s as placeholders, you do not change the value of the number.
 $1.3 = 1.30$

decimal

at a point
al line is

number, or
nd number,
tion of the
(x, y). The

axis
Ordered pair
(3, 4)
axis

3 4 5 6 7 8 9 10

Car Dealership
house
Park
Playground
Hospital
School

3 4 5 6 7 8 9 10

ideas from Grade 5

Gradual Release Model

Part #1: Introduction

Each lesson begins with a brief explanation of the focus skill or concept with examples to illustrate. An open-ended *Think About It* question requires students to use critical thinking to work through an answer.

LESSON 10 Adding and Subtracting Whole Numbers

CC.2.1.6.E.2

1 Introduction

Add whole numbers place by place. Start on the right and move left. Sometimes you will need to regroup.

$$\begin{array}{r} 11 \\ 12,643 \\ +24,571 \\ \hline 37,214 \end{array}$$

Add the ones. Then add the tens, the hundreds, and so on. The sum of the tens place is $4 + 7 = 11$. Regroup 11 tens as 1 hundred and 1 ten. Be sure to add the regrouped value in the hundreds place. The sum of the hundreds place is $1 + 6 + 5 = 12$. Regroup 12 hundreds as 1 thousand and 2 hundreds.

Subtract numbers starting in the ones place. Move from right to left. Sometimes you will need to regroup.

$$\begin{array}{r} 511,712 \\ -81,827 \\ \hline 429,885 \end{array}$$

Subtract the ones. Then subtract the tens. Since you cannot subtract 4 tens from 2 tens, regroup. Change 8 hundreds to 7 hundreds and 10 tens. Now there are 12 tens. Subtract the tens. Regroup 6 ten thousands as 5 ten thousands and 1 thousand, in order to subtract the thousands.

Addition and subtraction are **inverse operations**. Check subtraction by adding.

To check the subtraction above, add the difference and the number that was subtracted. The total should be the first number.

$$429,885 + 81,827 = 511,712$$

Think About It

It is important to correctly line up place values of numbers when adding and

Vocabulary

LESSON 18 Rational Numbers on a Coordinate Plane

CC.2.1.6.E.4

1 Introduction

A number line arranges numbers in order from least to greatest. The intersection of a horizontal number line, called the **x-axis**, and a vertical number line, called the **y-axis**, forms a **coordinate plane**.

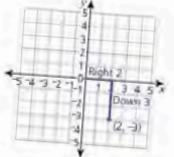
A point in a coordinate plane is described by an **ordered pair**, which consists of its values on each axis (x, y). The first value in the ordered pair is the **x-coordinate**. It tells how far left or right of $(0, 0)$ a point is. The second value in the ordered pair is the **y-coordinate**. It tells how far above or below $(0, 0)$ a point is. The point $(0, 0)$ is known as the **origin**. The axes divide a coordinate plane into four **quadrants**, labeled I, II, III, and IV.



Graph the point $(2, -3)$ on the coordinate plane.

The x-coordinate, 2, tells you how far to move left or right along the x-axis. The number 2 is positive, so begin at the origin $(0, 0)$ and move right 2 units.

The y-coordinate, -3, tells you how far to move up or down from the x-coordinate. The number -3 is negative, so move down 3 units.



Think About It

Explain why the order of the numbers matters when graphing coordinates on the coordinate plane.

Gradual Release Model

Part #2: Focused Instruction

Students are guided through two or more practice problems. Each problem includes a series of questions to help them work through the right answer. This practice helps develop critical thinking strategies as opposed to simple memorization of mathematical processes. Focused Instruction is ideal for collaborative learning.

Hints and reminders

Leading questions

2 Focused Instruction Lesson 10

Use addition and subtraction to solve word problems with whole numbers. You may need to use more than one operation to solve the problem.

► A school theater club projects that it will take \$14,000 to put on a musical. They have \$4,839 in the club's bank account. Someone donates \$2,500 to the club. How much more does the club need to raise?

How much is in the club's account? _____

How much was donated to the club? _____

How do you find how much the club has? _____

How much does the club have in all? _____

What operation do you use to find how much more? _____

Write a number sentence you can use to find how much more the club needs. Use a \square for the number you do not know.

Solve the number sentence to find the amount the club needs to raise. _____

► One year, 187,518 people visited a museum. The next year, 698 fewer people visited the museum. How many people visited the museum in both years?

How many people visited the museum the first year? _____

Write an expression to show the number of people who visited the museum the second year.

First, find how much the club already has.

Is the number of people the second year greater than or less than the number the first year?

2 Focused Instruction Lesson 18

Coordinate planes can be used to create maps.

► Chase and Rosario are designing a scavenger hunt for their math class. They are using a coordinate plane to make a map. The table lists the items they want to include along with the ordered pairs.

Item	Ordered Pairs
Toy football	(1, 7)
Roll of masking tape	(-3, -3)
Ruler	(3, 3)
Pack of pencils	(-1, 7)
Rock	(-3, 3)
Bottle of water	(-1, -7)
Rubber band	(3, -3)
Envelope	(1, -7)

Complete the table to show if the x - and y -values are positive or negative for points in each quadrant.

Quadrant	Positive x	Negative x	Positive y	Negative y
I				
II				
III				
IV				

Write each item next to the quadrant in which it is located.

Gradual Release Model

Part #3: Guided Practice

It's time to apply the strategies learned in part #2. In this section, open-ended problems require students to show their work, make a graph, draw a diagram, or do other mathematical tasks to answer questions.

Hints and reminders

3 Guided Practice Lesson 10

Solve the following problems.

1 Find the sum.

$$\begin{array}{r} 1,857 \\ 26,499 \\ + 3,501 \\ \hline \end{array}$$

Answer _____

2 Ms. Klein has earned 18,765 points on her credit card. She wants to use her points to get a gift card for her favorite store. She needs 25,000 points to get the gift card. How many more points does Ms. Klein need? Show your work.

Answer _____ points

3 An arena plans to sell 48,792 tickets for an upcoming concert. On the first day that tickets are on sale, 7,361 are sold. By the end of the first week, 21,033 more tickets are sold.

Part A How many tickets were sold in all in the first week?

Answer _____ tickets

Part B How many tickets remain after the first week of ticket sales?

The associative property says you can add numbers in any order.

You cannot regroup 0. Move left until you find a place to regroup.

3 Guided Practice Lesson 18

Solve the following problems.

1 The map shows the layout of a small town where Donald lives. The locations of buildings are described in respect to Donald's house. Each unit on the grid represents one block.

Part A Which building is located at (0, 5)?

Answer _____

Part B The post office is located at a point that has the same y-coordinate as the library. Its x-coordinate is the opposite of the library's x-coordinate. What ordered pair describes the location of the post office?

Answer _____

2 Square ABCD is shown on this coordinate plane.

Which point has the coordinates (3, -3)?

Answer _____

Which coordinate is the x-coordinate? Which is the y-coordinate?

Gradual Release Model

Part #4: Independent Practice

Students are ready to answer questions on their own without any help or hints. They will encounter a mix of item types, including those on the PSSA exam:

- Multiple choice
- Open ended

4 Independent Practice Lesson 1

Solve the following problems.

- Abby scored -4 in a game. Trudy scored 3 , Melanie scored -5 , and Gia scored -2 . Who received the score with the lowest value?
 - A Abby
 - B Trudy
 - C Melanie
 - D Gia
- The temperature at $1:00$ was -7° . At $4:00$, it was -12° . At $6:00$, it was -9° . Which statement is true?
 - A It was warmer at $1:00$ than at $4:00$.
 - B It was warmer at $4:00$ than at $6:00$.
 - C It was colder at $1:00$ than at $4:00$.
 - D It was colder at $6:00$ than at $4:00$.
- Which sets of integers are ordered from least to greatest? Select **all** that apply.
 - A $-5, 4, -3, 1, 0$
 - B $0, -1, 3, -4, 6$
 - C $7, 4, 0, -3, 5$

4 Independent Practice Lesson 1

6 Iris went scuba diving. She recorded the depths of some interesting animals that she saw.

- sea anemone: -11.6 m
- butterflyfish: -8.2 m
- clownfish: -13.4 m
- seahorse: -10.8 m

Part A Place the elevations of the sea animals in the order from greatest to least by writing the name of each animal in the correct order.

Greatest Elevation

Least Elevation

Part B Explain how you know your answer is correct.

Reviews

Each unit concludes with a review to test all skills covered in the unit. It includes a mix of item types in the same way as the Independent Practice section.

CC.3.4.6.B.1

UNIT 6 REVIEW
Statistics and Probability

Solve the following problems.

- The number of hours each volunteer at a community center worked one day is listed here: 6, 4, 5, 2, 6, 4, 2, 3, 8, 3. Which of the following statements are true of the data? Select all that apply.
 - A The interquartile range is 3.
 - B The mean is 5.
 - C The range is 3.
 - D The mode is 6.
 - E The median is 4.
- Look at the data set below.
68, 88, 44, 68, 50, 68, 37, 50
Are the range and interquartile range for the data set the same? Explain your answer.

- Students in a math study group scored 100, 98, 75, 88, and 91 on the last exam. What are the mean and median scores for the group?

4 Look at the box plot below.

What are the five key data points of the data in this box plot?

5 The mean of the data below is 7.

Will the mean absolute deviation of the data be a small number or a large number? Explain how you know.

6 The number of sales Luis made each month last year are listed below.

5	9	15	11	9	13
16	23	35	22	15	12

Part A What is the median of the data?
Answer _____

Part B Draw a box plot to show the data. Be sure to give the plot a title and label each of the key points.

7 The age of each singer in a chorus is listed below.

19	16	17	15	19	15
15	19	19	20	17	20

Part A Which dot plot shows the data?

A

B

C

D

Part B Explain how the mode of the data set is shown in the dot plot.

Part C What conclusion can you draw about this chorus based on the data set? Explain your answer.

Resources

Glossary

A glossary includes words and terms that appear in boldface throughout the book, along with their definitions.

Flash Cards

Students can cut out the flash cards to practice important ideas, formulas, and symbols from the book. They can make their own using the blank cards provided.

volume of a
rectangular prism
Volume =
length \times width \times height

$$V = lwh$$

GLOSSARY

- A** **absolute value:** the distance of a number from 0 on a number line
algebraic expression: a mathematical expression that contains symbols, or letters, and numbers and operations
area: the space inside a plane figure, measured in square units
associative property: allows three or more addends or products to be grouped in any order with parentheses to be added or multiplied:
 $a + (b + c) = (a + b) + c$ and $a \times (b \times c) = (a \times b) \times c$
- B** **base:** the number with an exponent that is used as a factor
box plot: a data display that identifies five key measures of a data set: the minimum, the maximum, the median, the upper quartile, and the lower quartile; also called a box-and-whisker plot
- C** **coefficient:** a number used to multiply a variable
commutative property: allows numbers to be added or multiplied in any order: $a + b = b + a$ and $a \times b = b \times a$
compare: to decide if one number is greater than or less than another number
constant: a number without a variable in an expression; a value that does not change
coordinate plane: the space defined by two number lines placed at right angles and used to locate points in space in relation to their distances from the number lines
cubic units: units that are cubed, or raised to the 3rd power
- D** **data:** information such as values and measurements
data displays: ways to organize and make data easy to read, such as graphs and plots
decimal: a number with one or more digits to the right of a decimal point
dependent variable: the y -variable, or the output

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Unit 1: Big Ideas from Grade 5

PAGES 8-15 Lesson 1: Multiplying Fractions

Introduction, Think About It

Focused Instruction

► Olivia and her friend Miguel are baking sugar cookies. They are using the recipe shown on page 9 of the student book. Olivia and Miguel decide that they only want to make $\frac{2}{3}$ of the recipe.

Ingredient	Amount	Ingredient	Amount
Butter		Eggs	
Sugar		Flour	
Vanilla		Baking Soda	
Salt			

Focused Instruction

► Alicia can read $2\frac{1}{4}$ pages of a book in one minute. One afternoon, she read for $6\frac{1}{2}$ minutes.

- 1 $\frac{1}{4} \times 12 =$ _____
- 2 $2\frac{1}{5} \times 5 =$ _____
- 3 $\frac{1}{8} \times 2\frac{2}{7} =$ _____
- 4 $\frac{1}{3} \times \frac{3}{5} =$ _____

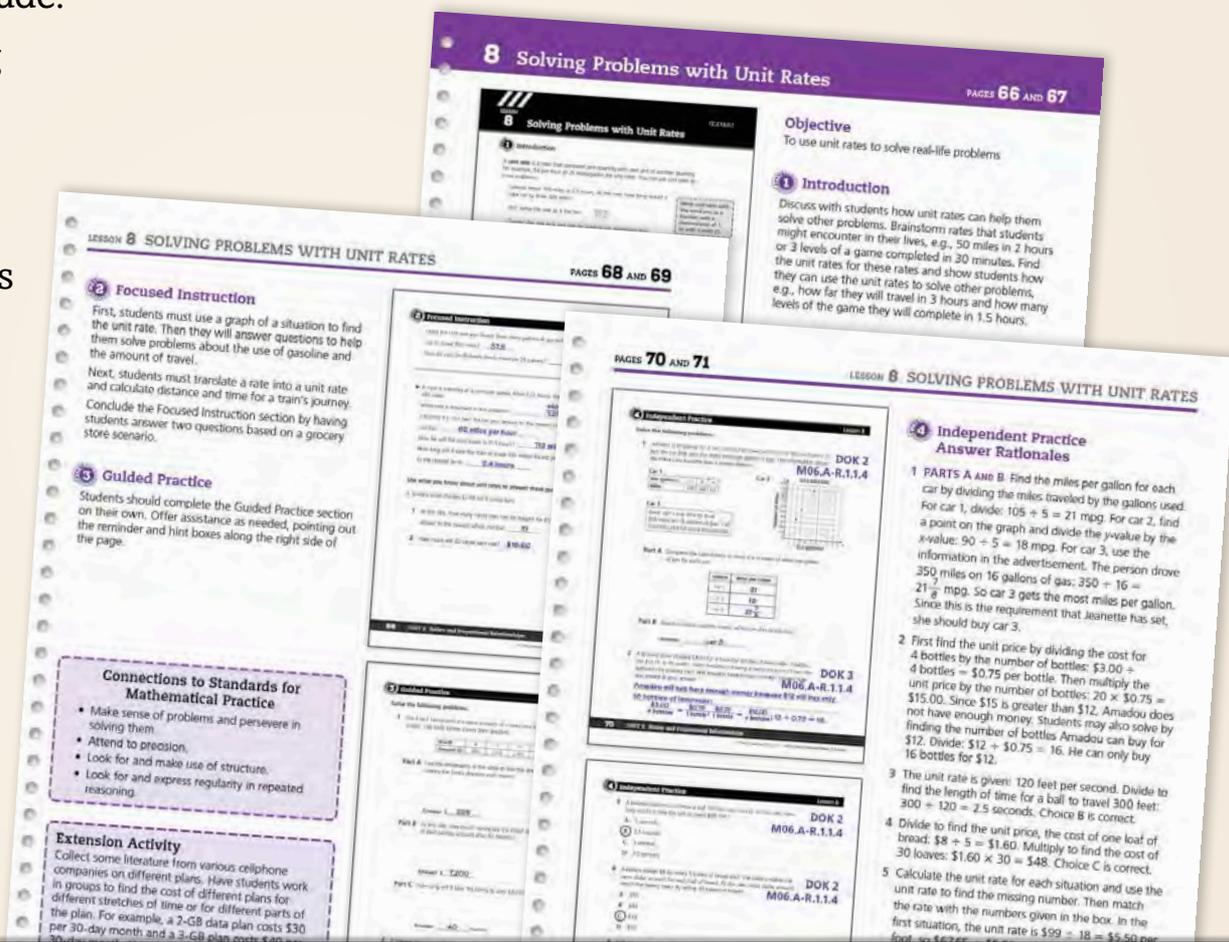
Guided Practice

- 1 Part A _____ feet
 Part B _____
- 2 Part A _____ feet
 Part B _____ feet

Teaching Support

Annotated teacher's editions include:

- Suggestions for use/teaching strategies
- Annotated student pages with answers
- Connections to the Standards for Mathematical Practice
- Eligible Content or PA Core Standards correlations
- Depth of Knowledge (DOK) levels
- Answer rationales
- Hands-on extension activities
- Vocabulary



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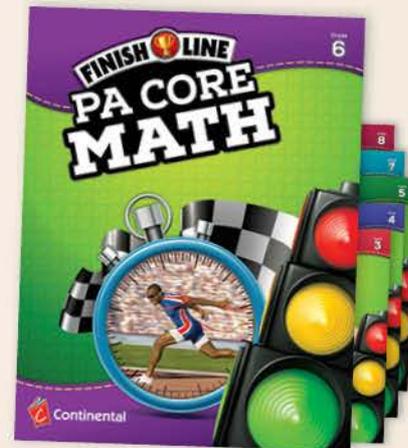


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