

Fifth Edition

# Arithmetic

Work-text

# 4

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## About the Text

*Arithmetic 4* contains a variety of exercises involving new/review material in each lesson. The work-text includes 170 lessons (excluding tests), correlated homework assignments, and supplementary exercises. The handbook at the end of the book contains facts, examples, and measures which are used throughout the work-text.

Although all new material is presented in the information boxes at the top of the work-text pages, the work-text is not designed to be used without a teacher. Students need to hear a thorough explanation of each concept and see procedures demonstrated step by step by the teacher.

*Arithmetic 4* Curriculum Lesson Plans available separately or as part of the Grade 4 Curriculum, and the Teacher Edition provide complete daily plans for teaching, reviewing, and assessing student progress. The Teacher Edition also includes solutions to all exercises in the text, enrichment activities, tips and ideas, and objectives for each page. *Arithmetic 4 Quizzes, Tests, and Speed Drills* is correlated with the work-text.

### Arithmetic 4

Fifth Edition

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# Contents

## 1 How Things Work

pages 1–82

Lessons 1–45

- Base ten/place value to hundred millions
- Commutative property of addition
- Story problems
- Customary measures: time, temperature, linear, capacity, mass
- Multiplying whole numbers with carrying
- Commutative property of multiplication
- Identity and zero properties of multiplication
- Two- and three-digit multiplication with carrying
- Long division with whole numbers/ money
- Rounding to nearest 10/100, nearest dollar/estimating
- Bar graphs
- Solving for unknown number in equations
- Geometry: terms, models, angles
- Geometry: polygons, similar/congruent figures, symmetry
- Measurement conversions

## 2 Unusual Animals

pages 83–154

Lessons 46–85

- Long division with two-digit divisors
- Line graphs
- Geometry: perimeter/area, including formulas
- Divisibility rules
- Fractional part of a whole/group
- Comparing, ordering, decomposing fractions
- Add/subtract fractions with common denominators
- Story problems with missing/extra information
- Measurement equations (multi-step)
- Mixed numbers
- Prime and composite numbers
- Geometric solid figures
- Equivalent fractions/cross multiplication
- Story problems: multi-step/ measurement

### 3 Tiny Countries

pages 155–234

Lessons 86–135

- Factors, common factors, greatest common factor (GCF)
- Measuring to nearest eighth inch/centimeter
- Reducing fractions
- Proper and improper fractions
- Pictographs, circle graphs
- Least common multiples (LCM)/least common denominator (LCD)
- Add/subtract fractions with uncommon denominators
- Metric prefixes/values
- Reading, writing, comparing decimal values
- Metric units: meter, liter, gram
- Writing decimals as fractions/fractions as decimals
- Add/subtract decimals/annexing zeros
- Money: make/count change
- Story problems with graphs
- Subtracting fractions with borrowing (common denominators)

### 4 State Fairs

pages 235–306

Lessons 136–170

- Graphs: range, mode, median, mean
- Subtracting fractions/mixed numbers with borrowing (uncommon denominators)
- Multiplying fractions/cancellation
- Metric measure conversions
- Multiplying mixed numbers
- Dot plot
- Squared numbers/square roots
- Metric measure equations
- Roman numerals
- Reading/writing large Roman numerals
- Geometry: use protractor to measure and draw angles
- Circles: properties, terms, angles
- Solving for unknown in equations with parentheses
- Comprehensive review lessons

**Handbook** p. 307

**Homework** p. 317

**Supplementary Exercises** p. 373



## Place Value in Base 10

The **base 10 system** uses 10 digits—0, 1, 2, 3, 4, 5, 6, 7, 8, 9—to form every number. Numbers can be written in *standard*, *word*, or *expanded* form.

one hundred sixty-eight million, two hundred forty-three thousand, nine hundred seventy-five = 168,243,975

$100,000,000 + 60,000,000 + 8,000,000 + 200,000 + 40,000 + 3,000 + 900 + 70 + 5 = 168,243,975$



- 1 Write each digit in the correct place. For each number, color the digit with the greatest value red and the digit with the least value blue.

	hundred millions	ten millions	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
a. 278,195									
b. 492,994,259									
c. 86,351									

- 2 Write each number in standard form.

a. six thousand, four hundred eighty-one = \_\_\_\_\_

b.  $200,000,000 + 50,000,000 + 1,000,000 + 600,000 + 80,000 + 9,000 + 700 + 30 + 1 =$   
\_\_\_\_\_

- 3 Add commas between periods. Write the value of the 5 in each number.

a. 257482  
\_\_\_\_\_

b. 1562983  
\_\_\_\_\_

c. 846925730  
\_\_\_\_\_

- 4 Mark the O beside the number in each set with the greater value.

a.  25,631  
 22,631

b.  467,803  
 674,308

- 5 Write the number your teacher says.

a. \_\_\_\_\_

b. \_\_\_\_\_





# Addition

the mathematical process of combining numbers called **addends** to get a total called the **sum**

**Commutative Property of Addition:** **addends** may be added in any order without changing the **sum**

97	addend	<u>208</u>
86	addend	97
+ 25	addend	86
208	sum	+ 25
		208

**6** Write the correct term beside each number in a. Add and check each problem.

a.  $472$  \_\_\_\_\_  
 $+ 521$  \_\_\_\_\_  
 \_\_\_\_\_

b.  $376$   
 $541$   
 $+ 687$

c.  $902$   
 $859$   
 $+ 787$

**7** Solve the story problem.

On vacation, Carson swam 14 days at the lake and 10 days at the pool. How many days did Carson swim on his vacation? \_\_\_\_\_ days

**8** Write the sum. Then use the commutative property to write the twin fact.

a.  $6 + 2 =$  \_\_\_\_\_       $2 + 6 =$  \_\_\_\_\_  
 b.  $9 + 5 =$  \_\_\_\_\_      \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_  
 c.  $3 + 7 =$  \_\_\_\_\_      \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_  
 d.  $7 + 8 =$  \_\_\_\_\_      \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

**9** Mark the O next to the rule for this table.

In	Out	
4	9	<input type="radio"/> + 2
7	12	<input type="radio"/> + 5
10	15	<input type="radio"/> + 7
13	18	

**10** Finish the table using the rule + 7.

In	Out
2	9
4	_____
6	_____
8	_____
10	_____



# Clever Cranium

Use the clues to find the number. Write the number in the blanks below, and don't forget the commas!

\_\_\_\_\_



The digit in the **ones place** is the number of days in one week. The digit in the **tens place** is the digit that looks like a doughnut. The digit in the **hundreds place** is the number of sides in a square. The digit in the **thousands place** is how many legs

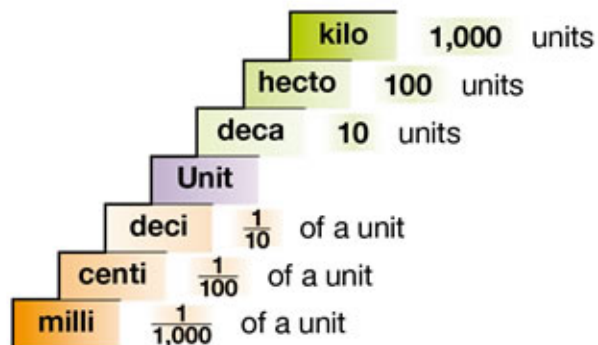
a spider has. The digit in the **ten thousands place** is twice as many points as a triangle has. The digit in the **hundred thousands place** is how many sleeves a jacket has. The digit in the **millions place** is half of ten.



## Metric System Prefixes

All metric measures use the same prefixes. Learn these prefixes and their meanings, and the metric system is very easy!

kilo = one thousand  
 hecto = one hundred  
 deca = ten  
 unit  
 deci = one tenth  
 centi = one hundredth  
 milli = one thousandth



1 Fill in each box with  $>$ ,  $<$ , or  $=$ .

- a. deca  deci      b. centi  unit      c. hecto  kilo      d. milli  deca
- e. 10 units  1 deca      f. 100 centi  10 deci      g. 100 centi  100 hecto

2 Write the number to complete the equation.

- a. 1 unit = \_\_\_\_\_ deci units      b. 1 deca unit = \_\_\_\_\_ units
- c. 1 unit = \_\_\_\_\_ centi units      d. 1 hecto unit = \_\_\_\_\_ units
- e. 1 unit = \_\_\_\_\_ milli units      f. 1 kilo unit = \_\_\_\_\_ units

3 Solve each story problem.

- a. Jeremiah cut  $18\frac{1}{2}$  in. off of a 24 in. board.  
How long was the board after he cut it? \_\_\_\_\_
- b. Charlotte's bakery used 6 lb. of strawberries to make strawberry tarts and twice as many strawberries for strawberry cheesecakes. How many total pounds of strawberries did the bakery use?  
\_\_\_\_\_

Workspace



4 Follow the signs. Reduce answers if necessary.

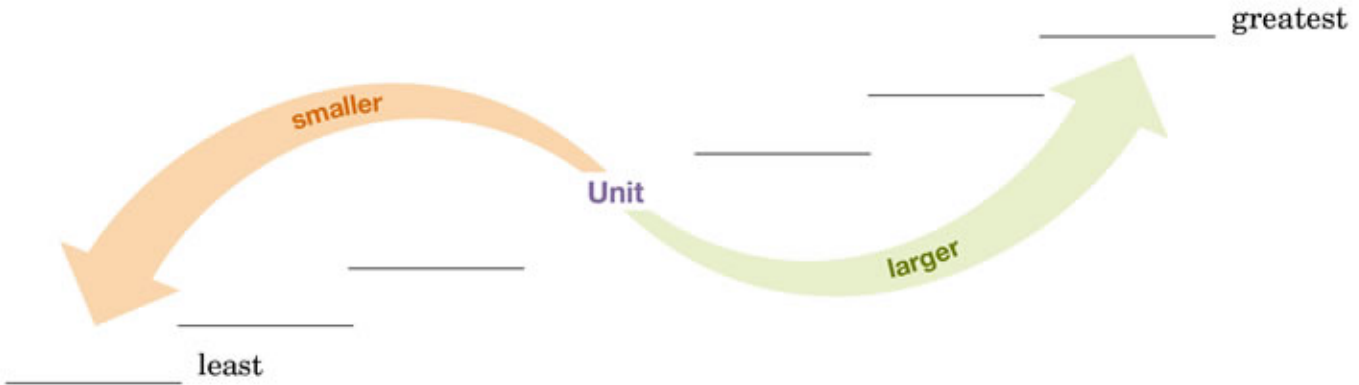
a. 
$$\begin{array}{r} \frac{7}{10} \\ - \frac{1}{6} \\ \hline \end{array}$$

b. 
$$\begin{array}{r} \frac{2}{3} \\ - \frac{3}{15} \\ \hline \end{array}$$

c. 
$$\begin{array}{r} \frac{9}{36} \\ + \frac{5}{12} \\ \hline \end{array}$$

d. 
$$\begin{array}{r} \frac{7}{8} \\ + \frac{5}{6} \\ \hline \end{array}$$

5 Without looking back, complete the chart, writing metric prefixes from least to greatest. Use page 179 to check your work.



6 Maleah bought three doughnuts for her sisters and a box of doughnuts and muffins for her Sunday school class. Write how much each doughnut and each muffin cost.



 = \_\_\_\_\_  = \_\_\_\_\_



### Clever Cranium

Find the number pattern in the first row. Finish the puzzle using the same pattern.

3 → 9	5 → 15	2 → 6	1 → 3
→ 21	11 →	4 →	→ 18
10 →	→ 36	30 →	0 →



## Addition

- **Addition** is the mathematical process of combining numbers called **addends** together to get a total called the **sum**. (p. 2)
- **Commutative Property of Addition:** addends may be added in any order without changing the sum. Use the commutative property to check an addition problem. (p. 2)
- The **inverse operation** of addition is subtraction. Use the inverse properties of addition and subtraction to find an unknown number. (pp. 4, 41)
- **Horizontal addition** problems are solved by beginning in the ones place and carrying as usual to the tens, hundreds, thousands place, etc. (p. 23)

## Area

- **Area** is the measure of a shape's surface and is always measured in square units. (p. 121)
- Find the area of a **rectangle** by multiplying its length by its width.  $A = l \times w$  (p. 123)
- Find the area of a **square** by multiplying the length of a side by itself.  $A = s \times s$  (p. 123)

## Average

- To **find the average** of several numbers, divide the sum of the numbers by the number of addends. (p. 91)

## Base Ten System

- The **base ten system** is a system of place value that uses 10 digits—0, 1, 2, 3, 4, 5, 6, 7, 8, 9—to form every Arabic number. (p. 1)
- The value of a digit is multiplied by 10 as it moves one place to the left. The value of a digit is divided by 10 as it moves one place to the right. (p. 55)

## Composite Numbers

- A **composite number** is a number that is divisible by numbers other than 1 and itself. (p. 124)

## Decimals

- A **decimal** is another way to write a fraction using place value. (p. 185)
- The **decimal point** separates the whole number from the decimal. When reading a mixed decimal, say the word *and* in place of the decimal point. (p. 185)
- A **mixed decimal** contains a whole number and a decimal. (p. 185)
- To **compare** the value of decimals, begin with the digits in the tenths place, then hundredths, then thousandths. (p. 187)
- Decimals can be written as **fractions**. (p. 193)
  - ▶ To write a tenth as a fraction, place it over 10.
  - ▶ To write a hundredth as a fraction, place it over 100.
  - ▶ To write a thousandth as a fraction, place it over 1,000.
- When **adding or subtracting decimals**, keep the decimal point in each number directly below the number above it. **Annex** (add) **zeros** at the end of a decimal to give all decimals being added or subtracted the same name. (p. 195)

## Divisibility Rules

A number is divisible by

- **2:** all even numbers
- **3:** the sum of the digits is divisible by 3
- **4:** ends in 00 or last two digits are divisible by 4
- **5:** the digit in the ones place is 5 or 0
- **9:** the sum of the digits is divisible by 9
- **10:** the digit in the ones place is 0



# Homework

## Lesson 5

1 Follow the signs.

a. 
$$\begin{array}{r} 629 \\ 972 \\ +831 \\ \hline \end{array}$$

b. 
$$\begin{array}{r} 10,243 \\ + 5,789 \\ \hline \end{array}$$

c. 
$$\begin{array}{r} 2,001 \\ - 946 \\ \hline \end{array}$$

d. 
$$\begin{array}{r} 789 \\ -279 \\ \hline \end{array}$$

e. 
$$\begin{array}{r} 213 \\ -199 \\ \hline \end{array}$$

2 Write the time.



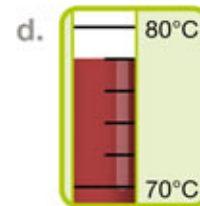
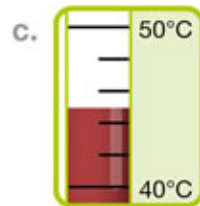
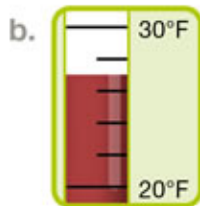
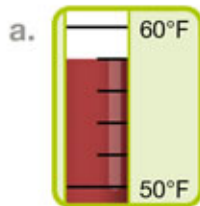
3 Draw hands to show the time.



quarter till 8

## Lesson 6

1 Write the temperature that each thermometer shows. Fill in each box with  $>$  or  $<$ .



2 Write each number in standard form.

a.  $20,000 + 8,000 + 50 + 7 =$  \_\_\_\_\_

b. five million, six hundred fifty-six thousand, four hundred = \_\_\_\_\_

c. two hundred seventy-eight thousand, eight hundred twelve = \_\_\_\_\_

d. nine hundred one million, three hundred thousand = \_\_\_\_\_

e.  $10,000 + 7,000 + 20 + 2 =$  \_\_\_\_\_



## 1 Two-Digit Subtraction

$$\begin{array}{r} \text{a. } 20 \\ - 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b. } 80 \\ - 21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c. } 50 \\ - 16 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d. } 40 \\ - 38 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e. } 90 \\ - 76 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f. } 30 \\ - 19 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g. } 32 \\ - 14 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h. } 56 \\ - 37 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i. } 41 \\ - 33 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j. } 82 \\ - 56 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k. } 73 \\ - 45 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l. } 65 \\ - 28 \\ \hline \end{array}$$

## 2 Three-Digit Subtraction

$$\begin{array}{r} \text{a. } 100 \\ - 69 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b. } 700 \\ - 251 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c. } 400 \\ - 309 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d. } 600 \\ - 58 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e. } 900 \\ - 630 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f. } 203 \\ - 58 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g. } 651 \\ - 275 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h. } 831 \\ - 488 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i. } 216 \\ - 99 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j. } 405 \\ - 109 \\ \hline \end{array}$$

## 3 Four-Digit Subtraction

$$\begin{array}{r} \text{a. } 3,000 \\ - 2,821 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b. } 8,000 \\ - 1,006 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c. } 7,000 \\ - 988 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d. } 2,000 \\ - 1,999 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e. } 6,000 \\ - 255 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f. } 6,203 \\ - 1,624 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g. } 1,090 \\ - 988 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h. } 5,831 \\ - 2,842 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i. } 9,005 \\ - 3,108 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j. } 4,251 \\ - 2,259 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k. } \$50.00 \\ - 6.95 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l. } \$29.88 \\ - 17.99 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m. } \$40.50 \\ - 21.85 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n. } \$44.00 \\ - 37.95 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o. } \$87.62 \\ - 34.89 \\ \hline \end{array}$$





## Division Challenge

Solve each story problem.

1. Jeremy's baseball team won their championship game, and the coach took the team out for pizza to celebrate. The parents of the players paid for half of the cost of the pizza, and the coach paid the other half. The total cost for 22 players was \$363. How much did each parent pay?

\_\_\_\_\_

2. Parkview Baptist Church is hosting a Fall Festival. The church brought 75 apple pies and 50 gallons of ice cream to serve at the festival. The pies cost \$5.50 each. The ice cream cost \$2.50 per gallon. If 250 people attended the festival, how much did the whole dessert cost per person?

\_\_\_\_\_

Workspace