

## Rising Into Fourth Grade

All rising into fourth grade students must read the required book choice at their grade level and complete the accompanying assignment. They must also read one additional book of their choice from the approved book list at their grade level, and then complete a one paragraph written summary. Each assignment is due on the first day of school.

Happy Reading!

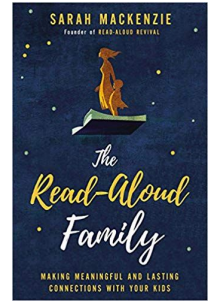
Novel	Author
<b>Required: *Where the Red Fern Grows</b>	<b>Wilson Rawls</b>
<i>The Black Stallion</i>	Walter Farley
<i>Peter Pan</i>	J.M. Barrie
<i>Old Yeller</i>	Fred Gipson
<i>Charlie and the Chocolate Factory</i>	Roald Dahl

### **Where the Red Fern Grows Reading Assignment:**

*Where the Red Fern Grows* is a classic tale of family, loyalty, sacrifice, and perseverance. Many generations have enjoyed this heart-wrenching tale, and now it's your turn! As you read, take good notes, and after you are finished, please write two (2) neat, grammatically correct, and well thought out paragraphs to answer the following questions:

1. Fortitude, or perseverance, is a central theme in *Where the Red Fern Grows*. Please provide at least three (3) pieces of evidence from the text to prove how we can know this. Furthermore, please include what these examples have taught you about fortitude and how you can portray it in your own life.
2. Love, loyalty, and sacrifice are intertwined themes in *Where the Red Fern Grows*. Please provide at least three (3) pieces of evidence from the text to prove how we can know this. Furthermore, please include what these examples have taught you about sacrificial love and loyalty and how you can portray them in your own life.

# Compelling Questions to Ask Your Reader



Parents: You don't have to ask all of these questions during every story/chapter. Picking one or two is perfectly fine!

## 1. What does the character want, and why can't he or she have it?

- a. Every story's main character wants something and can't have it-- that's the conflict. Something is inhibiting the character from getting what he or she most desires. There usually isn't only one right answer to this question.

## 2. Should he or she have done that?

- a. Should is an incredibly powerful word-- one must be thought through, reasoned with, and backed up. The answer might seem obvious on the surface, but ask this question once or twice, and you may be surprised at how much fun you can have with it.

## 3. How is X like Y? Or how is X different from Y?

- a. Considering how something is like or different from something else is how we develop metaphors. Metaphors matter because they are how we understand and communicate ideas to one another.
- b. Do not limit the comparisons to characters alone-- include places and objects.

## 4. Who is the most \_\_\_\_\_ in the story?

- a. Insert any character trait into the blank space. You'll probably need to follow up this question with a second one-- something like, "What makes you say that?" or, "Can you give me an example?"
- b. Here are some character traits to get you started: *ambitious, bold, brave, bright, calm, capable, careful, cautious, charming, considerate, cowardly, creative, dangerous, dauntless, deceptive, disloyal, demanding, determined, faithful, foolish, friendly, generous, grateful, greedy, happy, hard-working, honest, humorous, intelligent, loving, merciful, mysterious, naughty, nervous, noble, obnoxious, persistent, pleasant, proud, reliable, resourceful, restless, sad, selfish, selfless, sharp-witted, sincere, thoughtful, unkind, unselfish, virtuous, wise, witty...*

## 5. What does this story or character remind you of?

- a. Again, we want our children to learn to think in metaphor, because metaphors are how we understand and communicate ideas.

## 6. What is the character most afraid of?

- a. We learn a lot about a person by talking time to consider their greatest fears. This doesn't have to be the main character-- you can ask it about any of the central characters in the story who have their own fears and desires.

**7. What would you change about the setting or main character if you were writing this book?**

- a. This question might work best for children over age seven. They get the benefit of using someone else's world and characters as they play with language and plot twists.

**8. What surprised you most?**

- a. We can discover a lot about our kids by finding out what catches them off-guard, and is especially good after reading picture books, as picture book authors and illustrators often work very hard to surprise their readers.

**9. Which character most reminds you of yourself?**

- a. Most often we'll relate to the main character, but the conversations that follow this realization can lead to some great discussions and a new understanding of each other.
- b. Seeing ourselves in the books we read can shed a lot of light-- not just on the story, but on our own strengths and weaknesses as we live out our real day-to-day lives.

**10. What is something you don't want to forget from this book (or from this chapter)?**

- a. To answer this question, the reader must recall the story and bring to mind a specific scene.
- b. It's an easier question to answer than "What was your favorite part of the story?" because there's no pressure to find the very best answer. You can simply name any one thing you don't want to forget.

The conversations you unleash by asking open-ended questions in an easygoing, friendly way are limitless. You may find that one or two questions are your own go-tos, your favorites to ask your kids time and time again. A friendly disposition and a collection of open-ended questions such as these are all you need to have meaningful, lasting conversations with your kids about books.

Remember, the habit of asking compelling questions is more important than getting compelling answers. Make asking questions and having conversations as frequent and natural as asking your kids how their day went, or what they did at their friend's house. Don't worry too much about whether their answers are profound. That will come with time and practice. Instead, focus on helping your child develop a habit of asking questions.

\*Questions and descriptions taken from the book, [The Read-Aloud Family](#), by Sarah Mackenzie, copyright 2018.

## **Summer Math Homework**

### **Rising Fourth Grade Students**

Dear parents,

The following math packet for your scholar includes the first 8 lessons in the Saxon Math 6/5 textbook that we use to teach our fourth graders. This packet has a WARM-UP section for quick mental math practice, as well as, a NEW CONCEPTS section where it explains the lesson and provides various examples for the scholar to follow. Finally, there is the LESSON PRACTICE and MIXED PRACTICE sections, where your scholar will be completing their work. The LESSON PRACTICE contains problems that directly relate to the lesson being taught. The MIXED PRACTICE is a spiral review of the previous lessons and concepts learned in third grade.

### **Assignment**

Please have your scholar complete the MIXED PRACTICE questions 1-30 for *each* lesson over the summer. We recommend breaking up each lesson into one week working on a few problems each night. This is to ensure your scholar is not overwhelmed at the end of the summer with all eight lessons.

Please make sure each lesson is completed neatly and correctly numbered with the scholar's name in the upper right hand corner of their paper, followed underneath by the lesson number, and the number of questions completed which is 1-30. Scholars *must* show their work for all required problems.

This packet is to be turned in to your scholar's fourth grade teacher on the **first day of school** and will be taken as their first math grade of the year.

Thank you for your continued support in your scholar's education and have a wonderful summer!!

Sincerely,

The Fourth Grade Team

LESSON

1

# Sequences • Digits

WARM-UP

**Facts Practice:** 100 Addition Facts (Test A)<sup>†</sup>

**Mental Math:** Count by tens from 10 to 100. Count by hundreds from 100 to 1000.

- |                   |                      |                |
|-------------------|----------------------|----------------|
| a. $3 + 3$        | b. $30 + 30$         | c. $300 + 300$ |
| d. $40 + 50$      | e. $200 + 600$       | f. $50 + 50$   |
| g. $20 + 20 + 20$ | h. $500 + 500 + 500$ |                |

**Problem Solving:**

The counting numbers are 1, 2, 3, 4, and so on. How many one-digit counting numbers are there?

NEW CONCEPTS

**Sequences** Counting is a math skill that we learn early in life. Counting by ones, we say the numbers

1, 2, 3, 4, 5, 6, ...

These numbers are called **counting numbers**. We can also count by a number other than one. Below we show the first five numbers for counting by twos and the first five numbers for counting by fives.

2, 4, 6, 8, 10, ...

5, 10, 15, 20, 25, ...

An ordered list of numbers forms a **sequence**. Each member of the sequence is a **term**. The three dots mean that the sequence continues even though the numbers are not written. We can study a sequence to discover its counting pattern, or rule. The rule can be used to find more terms in the sequence.

**Example 1** What are the next three terms in this counting sequence?

3, 6, 9, 12, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

<sup>†</sup>For instructions on how to use the Warm-up activities, please consult the preface.

**Solution** The pattern is “Count up by threes.” To find the next three terms, we may count up by threes, or we may count up by ones and emphasize every third term (one, two, *three*, four, five, *six*, ...). Either way, we find that the next three terms are **15, 18, and 21**.

**Example 2** Describe the rule for this counting sequence. What is the next term in the sequence?

56, 49, 42, \_\_\_\_\_, ...

**Solution** This sequence counts down. We find that the rule for this sequence is “**Count down by sevens.**” Counting down by seven from 42 gives us **35**.

**Digits** There are ten **digits** in our number system. They are 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. The number 385 has three digits, and the last digit is 5. The number 148,567,896,094 has twelve digits, and the last digit is 4.

**Example 3** The number 186,000 has how many digits?

**Solution** The number 186,000 has **six digits**.

**Example 4** What is the last digit of 26,348?

**Solution** The number 26,348 has five digits. The last digit is **8**.

## LESSON PRACTICE

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**Practice set** Describe the rule for each counting sequence. Then write the next three terms in the sequence.

a. 6, 8, 10, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

b. 7, 14, 21, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

c. 4, 8, 12, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

d. 21, 18, 15, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

e. 45, 40, 35, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

f. 12, 18, 24, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

How many digits are in each of these numbers?

g. 36,756

h. 8002

i. 1,287,495

What is the last digit of each of these numbers?

j. 17

k. 3586

l. 654,321

## MIXED PRACTICE

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**Problem set** Write the next term in each counting sequence:

1. 10, 15, 20, \_\_\_\_\_, ...

2. 56, 49, 42, \_\_\_\_\_, ...

3. 8, 16, 24, \_\_\_\_\_, ...

4. 18, 27, 36, 45, \_\_\_\_\_, ...

5. 24, 21, 18, \_\_\_\_\_, ...

6. 32, 28, 24, 20, \_\_\_\_\_, ...

Write the missing term in each counting sequence:

7. 7, 14, \_\_\_\_\_, 28, 35, ...

8. 40, \_\_\_\_\_, 30, 25, 20, ...

9. 20, \_\_\_\_\_, 28, 32, 36, ...

10. 24, 32, \_\_\_\_\_, 48, ...

11. \_\_\_\_\_, 36, 30, 24, ...

12. 21, 28, \_\_\_\_\_, 42, ...

Describe the rule for each counting sequence, and write the next three terms:

13. 3, 6, 9, 12, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

14. 8, 16, 24, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

15. 6, 12, 18, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

16. 40, 35, 30, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

17. 18, 21, 24, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

18. 9, 18, 27, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

19. What word names an ordered list of numbers?

How many digits are in each number?

20. 186,000

21. 73,842

22. 30,004,091

What is the last digit of each number?

23. 26,348

24. 347

25. 9,675,420

## LESSON

## 2

## Even and Odd Numbers

## WARM-UP

**Facts Practice:** 100 Addition Facts (Test A)

**Mental Math:** Count up and down by tens between 10 and 100. Count up and down by hundreds between 100 and 1000.

a.  $6 + 6$

b.  $60 + 60$

c.  $600 + 600$

d.  $60 + 70$

e.  $70 + 80$

f.  $300 + 300 + 300$

g.  $90 + 90$

h.  $50 + 50 + 50 + 50$

**Problem Solving:**

How many two-digit counting numbers are there?

## NEW CONCEPT

**Whole numbers** are the counting numbers and the number 0.

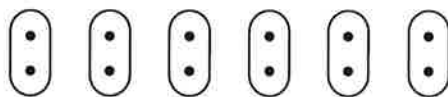
0, 1, 2, 3, 4, 5, 6, ...

Counting by twos, we say the numbers

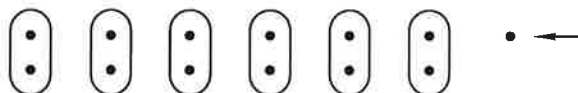
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, ...

This is a special sequence. These numbers are **even numbers**. The number 0 is also an even number. The sequence of even numbers continues without end. The numbers 36 and 756 and 148,567,896,094 are all even. We can tell whether a whole number is even by looking at the last digit of the number. If the last digit is even, then the number is even. So even numbers end with 0, 2, 4, 6, or 8.

An even number of objects can be arranged in pairs. Twelve is an even number. Here we show 12 dots arranged in six pairs. Notice that every dot has a partner.



Next we show 13 dots arranged in pairs. We find that there is a dot that does not have a partner. So 13 is not even.





The whole numbers that are not even are **odd**. We can make a list of odd numbers by counting up by twos from the number 1. Odd numbers form this sequence:

1, 3, 5, 7, 9, 11, 13, 15, 17, ...

If the last digit of a number is 1, 3, 5, 7, or 9, then the number is odd. All whole numbers are either odd or even.

**Example 1** Which of these numbers is even?

3586      2345      2223

**Solution** Even numbers are the numbers we say when counting by twos. We can see whether a number is odd or even by looking at the last digit of the number. If the last digit is even, then the number is even. The last digits of these three numbers are 6, 5, and 3, respectively. Since 6 is even and 5 and 3 are not, the only even number in the list is **3586**.

**Example 2** Which of these numbers is not odd?

123,456      654,321      353,535

**Solution** All whole numbers are either odd or even. A number that is not odd is even. The last digits of these numbers are 6, 1, and 5, respectively. Since 6 is even (not odd), the number that is not odd is **123,456**.

Half of an even number is a whole number. We know this because an even number of objects can be separated into two equal groups. However, half of an odd number is not a whole number. If an odd number of objects is divided into two equal groups, then one of the objects will be broken in half. These two stories illustrate dividing an even number in half and dividing an odd number in half:

*Sherry has 6 cookies to share with Leticia. If Sherry shares the cookies equally, each girl will have 3 cookies.*

*Herman has 5 cookies to share with Ivan. If Herman shares the cookies equally, each boy will have  $2\frac{1}{2}$  cookies.*

**Activity: Halves**

The table below lists the counting numbers 1 through 10. Below each counting number we have recorded half of the number. Continue the list of counting numbers and their halves for the numbers 11 through 20.

Counting number	1	2	3	4	5	6	7	8	9	10
Half of number	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5

**LESSON PRACTICE**

**Practice set** Describe each number as odd or even:

- a. 0                                      b. 1234                                      c. 20,001  
 d. 999                                      e. 3000                                      f. 391,048

- g. All the students in the class separated into two groups. The same number of students were in each group. Was the number of students in the class an odd number or an even number?  
 h. Leticia has seven cookies to share with Willis. If Leticia shares the cookies equally, how many cookies will each person have?

**MIXED PRACTICE**

**Problem set** <sup>†</sup>1. If a whole number is not even, then what is it?  
 (2)

What is the last digit of each number?

2. 47,286,560                                      3. 296,317  
 (1)    (1)

Describe each number as odd or even:

4. 15                                      5. 196                                      6. 3567  
 (2)    (2)    (2)

7. Which of these numbers is even?  
 (2)

3716              2345              2223

8. Which of these numbers is odd?  
 (2)

45,678              56,789              67,890

<sup>†</sup>The italicized numbers within parentheses underneath each problem number are called *lesson reference numbers*. These numbers refer to the lesson(s) in which the major concept of that particular problem is introduced. If additional assistance is needed, refer to the discussion, examples, or practice problems of that lesson.

9. Which of these numbers is not odd?

(2)

333,456      654,321      353,535

10. Which of these numbers is not even?

(2)

300      232      323

Write the next three terms in each counting sequence:

11. 9, 12, 15, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

12. 16, 24, 32, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

13. 120, 110, 100, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

14. 28, 24, 20, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

15. 55, 50, 45, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

16. 18, 27, 36, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

17. 36, 33, 30, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

18. 18, 24, 30, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

19. 14, 21, 28, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

20. 66, 60, 54, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

21. 48, 44, 40, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

22. 99, 90, 81, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

23. 88, 80, 72, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

24. 84, 77, 70, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...

(1)

25. All the students in the class formed two lines. An equal number of students were in each line. Which of the following could not be the total number of students in the class?

(2)

A. 30

B. 31

C. 32

26. What number is half of 5?

(2)

27. Which of these numbers is a whole number?

(2)

A. half of 11

B. half of 12

C. half of 13

## LESSON

## 3

**Using Money to  
Illustrate Place Value****WARM-UP**

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**Facts Practice:** 100 Addition Facts (Test A)**Mental Math:** Count up and down by tens between 10 and 200. Count up and down by hundreds between 100 and 2000.

- |                |                |                |
|----------------|----------------|----------------|
| a. $30 + 70$   | b. $20 + 300$  | c. $320 + 20$  |
| d. $340 + 200$ | e. $250 + 40$  | f. $250 + 400$ |
| g. $120 + 60$  | h. $600 + 120$ |                |

**Problem Solving:**

How many three-digit counting numbers are there?

**NEW CONCEPT**

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**Activity: *Place Value***

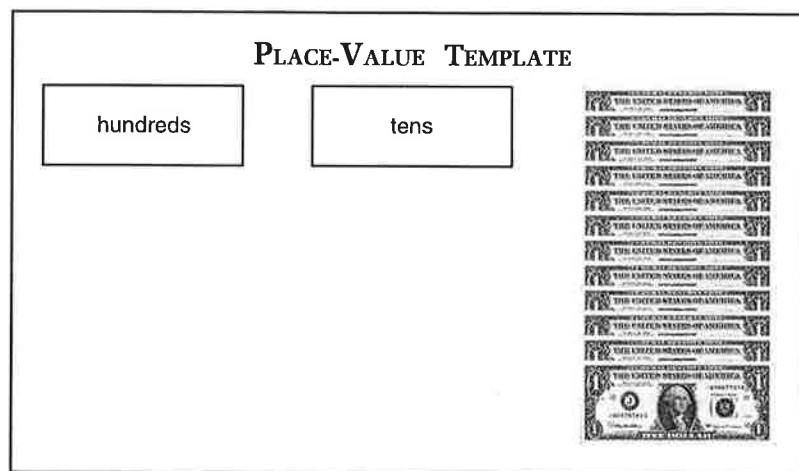
Materials needed:

- Activity Masters 1, 2, and 3 (two copies of each master per student; masters available in *Saxon Math 6/5 Assessments and Classroom Masters*)
- Activity Master 4 (one copy per student)
- locking plastic bags (one per student)
- paper clips (three per student)

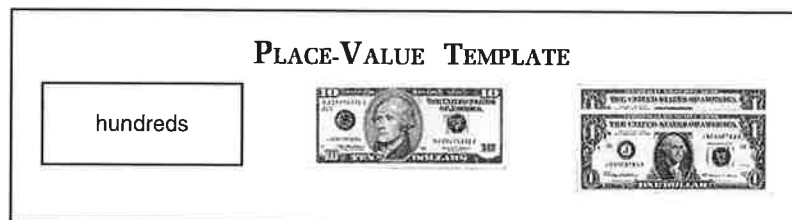
Preparation:

**Step 1:** Cut out the \$1, \$10, and \$100 money manipulatives on Activity Masters 1–3. A paper cutter, if available, will save time.**Step 2:** Distribute the money manipulatives, copies of Activity Master 4 (Place-Value Template), bags, and paper clips to students.*Note:* At the end of this lesson students may store their money manipulatives in the plastic bags, clipping together bills of the same denomination. This paper money will be useful in later lessons.

Place twelve \$1 bills on the template in the ones position, as shown below.



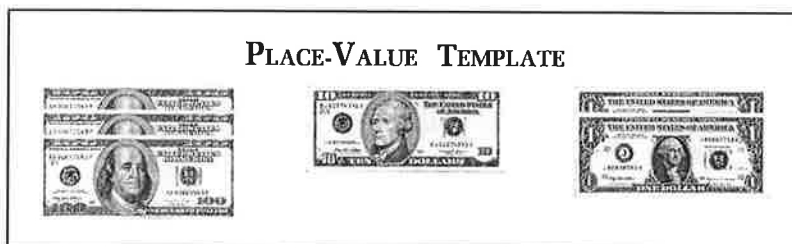
We can use fewer bills to represent \$12 by exchanging ten \$1 bills for one \$10 bill. Remove ten \$1 bills from the template, and replace them with one \$10 bill in the tens position. You will get this arrangement of bills:



The bills on the template illustrate the **expanded form** of the number 12.

Expanded form: 1 ten + 2 ones

Now place \$312 on the place-value template, using the fewest bills necessary. Use the bills to write 312 in expanded form.



From the template we see that the expanded form for 312 is  
3 hundreds + 1 ten + 2 ones

Use the bills and place-value template to work these exercises:

1. Place twelve \$10 bills on the place-value template. Then exchange ten of the bills for one \$100 bill. Write the result in expanded form.
2. Place twelve \$1 bills and twelve \$10 bills on the template. Then exchange bills to show that amount of money using the least number of bills possible. Write the result in expanded form.

### LESSON PRACTICE

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- Practice set**
- a. Which digit in 365 shows the number of tens?
  - b. Use digits to write the number for “3 hundreds plus 5 tens.”
  - c. How much money is one \$100 bill plus ten \$10 bills plus fifteen \$1 bills? You may use your bills to help find the answer.

### MIXED PRACTICE

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- Problem set**
1. Use digits to write the number for “5 hundreds plus 7 tens plus 8 ones.”  
(3)
  2. Use digits to write the number for “2 hundreds plus 5 tens plus 0 ones.”  
(3)
  3. In 560, which digit shows the number of tens?  
(3)
  4. In 365, which digit shows the number of ones?  
(3)
  5. Ten \$10 bills have the same value as one of what kind of bill?  
(3)
  6. Which of these numbers is not odd?  
(2)  
A. 365                      B. 653                      C. 536
  7. Which of these numbers is not even?  
(2)  
A. 1234                      B. 2345                      C. 3456
  8. The greatest two-digit odd number is 99. What is the greatest two-digit even number?  
(2)
  9. Two teams have an equal number of players. The total number of players on both teams could not be  
(2)  
A. 22                      B. 25                      C. 50

10. We can count to 12 by 2's or by 3's. We do not count to 12  
 (1) when counting by  
 A. 1's            B. 4's            C. 5's            D. 6's

Write the next three terms in each counting sequence:

11. 9, 12, 15, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

12. 54, 48, 42, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

13. 8, 16, 24, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

14. 80, 72, 64, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

15. 16, 20, 24, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

16. 40, 36, 32, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

Describe the rule for each counting sequence, and find the next three terms:

17. 27, 36, 45, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

18. 81, 72, 63, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

19. 10, 20, 30, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

20. 33, 30, 27, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
 (1)

21. What number equals four tens?  
 (3)

22. What number equals five hundreds?  
 (3)

23. How much money is two \$100 bills plus twelve \$10 bills  
 (3) plus fourteen \$1 bills? You may use your bills to help  
 find the answer.

24. The number 80 means "eight tens." The number 800  
 (3) means eight what?

25. The fifth term in the counting sequence below is 20.  
 (1) What is the ninth term in this sequence?

4, 8, 12, 16, ...

26. How much money is half of \$10?  
 (2)

27. How much money is half of \$5?  
 (2)

28. Is the greatest two-digit number an odd number or an  
 (2) even number?

## L E S S O N

## 4

## Comparing Whole Numbers

## WARM-UP

**Facts Practice:** 100 Addition Facts (Test A)

**Mental Math:** Count up and down by tens between 0 and 200. Count up and down by hundreds between 0 and 2000.

- |                          |                |
|--------------------------|----------------|
| a. $300 + 300 + 20 + 20$ | b. $250 + 50$  |
| c. $300 + 350$           | d. $320 + 320$ |
| e. $300 + 300 + 50 + 50$ | f. $250 + 60$  |
| g. $340 + 600$           | h. $240 + 320$ |

**Problem Solving:**

The two-digit counting numbers that contain the digits 1 and 2 are 12 and 21. There are six three-digit counting numbers that contain the digits 1, 2, and 3. One of these numbers is 213. What are the other five numbers?

## NEW CONCEPT

When we count from 1 to 10, we count in order of size from least to greatest.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

↑  
least
↑  
greatest

Of these numbers, the least is 1 and the greatest is 10. Since these numbers are arranged in order, we can easily see that 5 is greater than 4 and that 5 is less than 6.

We can use mathematical symbols to compare numbers. These symbols include the equal sign (=) and the “greater than/less than” symbol (> or <).

$5 = 5$  is read “Five is **equal to** five.”

$5 > 4$  is read “Five is **greater than** four.”

$5 < 6$  is read “Five is **less than** six.”

When using a “greater than/less than” symbol to compare two numbers, we place the symbol so that the smaller end points to the smaller number.



**Example 1** Write the numbers 64, 46, and 54 in order from least to greatest.

**Solution** “From least to greatest” means “from smallest to largest.” We write the numbers in this order:

**46, 54, 64**

**Example 2** Complete each comparison by replacing the circle with the proper comparison symbol:

(a)  $7 \bigcirc 7$

(b)  $6 \bigcirc 4$

(c)  $6 \bigcirc 8$

**Solution** When two numbers are equal, we show the comparison with an equal sign.

(a)  $7 = 7$

When two numbers are not equal, we place the greater than/less than symbol so that the smaller end points to the smaller number.

(b)  $6 > 4$

(c)  $6 < 8$

**Example 3** Compare:

(a)  $373 \bigcirc 47$

(b)  $373 \bigcirc 382$

**Solution** (a) When comparing whole numbers, we know that numbers with more digits are greater than numbers with fewer digits.

**$373 > 47$**

(b) When comparing whole numbers with the same number of digits, we consider the value place by place. The digits in the hundreds place are the same, but in the tens place 8 is greater than 7. So we have the following:

**$373 < 382$**

**Example 4** Use digits and a comparison symbol to write this comparison:

*Six is less than ten.*

**Solution** We translate the words into digits. The comparison symbol for “is less than” is “<”.

**$6 < 10$**

**LESSON PRACTICE**

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- Practice set** a. Write the numbers 324, 243, and 423 in order from least to greatest.

Complete each comparison by replacing the circle with the proper comparison symbol:

- b.  $36 \bigcirc 632$                       c.  $110 \bigcirc 101$   
 d.  $90 \bigcirc 90$                               e.  $112 \bigcirc 121$

Write each comparison using mathematical symbols:

- f. Twenty is less than thirty.  
 g. Twelve is greater than eight.

**MIXED PRACTICE**

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- Problem set** Write each comparison using digits and a comparison symbol:

1. Four is less than ten.  
(4)  
 2. Fifteen is greater than twelve.  
(4)

Complete each comparison by replacing the circle with the proper comparison symbol:

3.  $97 \bigcirc 101$                               4.  $34 \bigcirc 43$   
(4)    (4)

5. Use digits to write the number for “3 hundreds plus 6 tens plus 5 ones.”  
(3)

6. Which digit in 675 shows the number of hundreds?  
(3)

7. Which digit in 983 shows the number of ones?  
(3)

8. One \$100 bill equals ten of what kind of bill?  
(3)

Describe each number as odd or even:

9. 36,275                      10. 36,300                      11. 5,396,428  
(2)                                      (2)                                      (2)

12. The greatest two-digit odd number is 99. What is the greatest three-digit odd number?  
(2)

13. We can count to 18 by 2's or by 3's. We do not count to 18  
(1) when counting by  
A. 1's            B. 4's            C. 6's            D. 9's
14. Write the numbers 435, 354, and 543 in order from least  
(4) to greatest.
15. The fourth term in the counting sequence below is 24.  
(1) What is the ninth term in this sequence?  
6, 12, 18, ...
16. What is the value of five \$100 bills, thirteen \$10 bills, and  
(3) ten \$1 bills? You may use your money manipulatives to help find the answer.

Write the next three terms in each counting sequence:

17. 20, 24, 28, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)
18. 106, 104, 102, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)
19. 0, 6, 12, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)
20. 0, 7, 14, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)
21. 40, 32, 24, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)
22. 45, 36, 27, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)
23. What number equals nine tens?  
(3)
24. What number equals eleven tens?  
(3)
25. What is the seventh term in this counting sequence?  
(1)  
8, 16, 24, ...
26. Is the eleventh term of this counting sequence odd or even?  
(1, 2)  
2, 4, 6, 8, ...
27. What number is half of 9?  
(2)
28. In Room 12 there is one more boy than there are girls. Is  
(2) the number of students in Room 12 odd or even?

## L E S S O N

## 5

# Naming Whole Numbers Through Hundreds • Dollars and Cents

## WARM-UP

**Facts Practice:** 100 Addition Facts (Test A)

**Mental Math:** Count up and down by tens between 0 and 200. Count up and down by hundreds between 0 and 2000.

a.  $200 + 60 + 300$

b.  $20 + 600 + 30$

c.  $350 + 420$

d.  $250 + 250$

e.  $400 + 320 + 40$

f.  $30 + 330 + 100$

g.  $640 + 250$

h.  $260 + 260$

**Problem Solving:**

Write all the three-digit numbers that each have the digits 2, 3, and 4.

## NEW CONCEPTS

### Naming whole numbers through hundreds

If numbers are to be our “friends,” we should learn their names. Naming numbers is not difficult if we pay attention to place values. In order to name larger numbers, we should first be able to name numbers that have three digits. Let’s consider the number 365. Below we use expanded form to break the number into its parts. Then we show the name of each part.

three hundreds + six tens + five ones

“three hundred” “sixty” “five”

We will use words to name a number that we see and use digits to write a number that is named. Look at these examples:

18      eighteen

80      eighty

81      eighty-one

108     one hundred eight

821     eight hundred twenty-one

Notice that we do not use the word *and* when naming whole numbers. For example, we write the number 108 as “one hundred eight,” **not** “one hundred *and* eight.” Also notice that we use a hyphen when writing the numbers from 21 to 99 that do not end with zero. For example, we write 21 as “twenty-one,” **not** “twenty one.”

**Dollars and cents** Dollars and cents are written with a dollar sign and a decimal point. To name an amount of money, we first name the number of dollars, say “and,” and then name the number of cents. The decimal point separates the number of dollars from the number of cents. For example, \$324.56 is written as “three hundred twenty-four dollars and fifty-six cents.”

### LESSON PRACTICE

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- Practice set**\*†
- Use words to name \$563.45.
  - Use words to name 101.
  - Use words to name 111.
  - Use digits to write two hundred forty-five.
  - Use digits to write four hundred twenty.
  - Use digits to write five hundred three dollars and fifty cents.

### MIXED PRACTICE

---

- Problem set**
- Use digits to write three hundred seventy-four dollars <sup>(5)</sup> and twenty cents.
  - Use words to name \$623.15. <sup>(5)</sup>
  - Use digits to write two hundred five. <sup>(5)</sup>
  - Use words to name 109. <sup>(5)</sup>
  - Write this comparison using digits and a comparison <sup>(4, 5)</sup> symbol:

*One hundred fifty is greater than one hundred fifteen.*

†The asterisk after “Practice set” indicates that additional practice problems intended for remediation are available in the appendix.

6. Compare:  $346 \bigcirc 436$   
(4)

7. Use digits to write the number for “5 hundreds plus 7 tens plus 9 ones.”  
(3)

8. Arrange these four numbers in order from least to greatest:  
(4)

462      624      246      426

9. Which digit in 567 shows the number of tens?  
(3)

10. When counting up by tens, what number comes after 90?  
(1)

Describe each number as odd or even:

11. 363,636  
(2)

12. 36,363  
(2)

13. 2000  
(2)

14. The greatest three-digit odd number is 999. What is the greatest three-digit even number?  
(2)

15. We can count to 20 by 2’s or by 10’s. We do not count to 20 when counting by  
(1)

A. 1’s      B. 3’s      C. 4’s      D. 5’s

16. There are equal numbers of boys and girls in the room. Which of the following could not be the number of students in the room?  
(2)

A. 12      B. 29      C. 30      D. 44

17. What is the value of six \$100 bills, nine \$10 bills, and twelve \$1 bills? You may use your money manipulatives to help find the answer.  
(3)

Write the next four terms in each counting sequence:

18. 0, 9, 18, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)

19. 25, 30, 35, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)

20. 6, 12, 18, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)

State the rule for each counting sequence, and find the next four terms:

21. 100, 90, 80, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)

22. 90, 81, 72, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)

23. 88, 80, 72, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)

24. 7, 14, 21, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, ...  
(1)

25. What is the ninth term in this counting sequence?

(1)

3, 6, 9, ...

26. Is the tenth term in this counting sequence odd or even?

(1, 2)

1, 3, 5, 7, 9, ...

27. Is the greatest three-digit whole number odd or even?

(2)

28. Tom and Jerry evenly shared the cost of a \$7 pizza. How much did each person pay?

(2)

## LESSON

## 6

# Adding One-Digit Numbers • Using the Addition Algorithm

## WARM-UP

**Facts Practice:** 100 Addition Facts (Test A)

**Mental Math:** Count up and down by 20's between 0 and 200.  
Count up and down by 200's between 0 and 2000.

- |                          |                |
|--------------------------|----------------|
| a. $400 + 50 + 300 + 40$ | b. $320 + 300$ |
| c. $320 + 30$            | d. $320 + 330$ |
| e. $60 + 200 + 20 + 400$ | f. $400 + 540$ |
| g. $40 + 250$            | h. $450 + 450$ |

**Problem Solving:**

Write the six three-digit numbers that have each of the digits 3, 4, and 5. Then arrange the six numbers in order from least to greatest.

## NEW CONCEPTS

### Adding one-digit numbers

Numbers that are added are called **addends**. The answer to an addition problem is the **sum**. We may add numbers in any order to find their sum. For example,  $5 + 6$  gives us the same sum as  $6 + 5$ . This property of addition is called the **commutative property of addition**. When adding more than two numbers, this property allows us to add in any order we choose. Below we show three ways to add 6, 3, and 4. We point out the two numbers we added first.

$$\begin{array}{r}
 6 \\
 3 \\
 + 4 \\
 \hline
 13
 \end{array}
 \qquad
 \begin{array}{r}
 6 \\
 3 \\
 + 4 \\
 \hline
 13
 \end{array}
 \qquad
 \begin{array}{r}
 6 \\
 3 \\
 + 4 \\
 \hline
 13
 \end{array}$$

As shown in the right-hand example above, we can sometimes find pairs of numbers that add up to 10. This makes the addition easier.

**Example 1** What is the sum of 7, 4, 3, and 6?

**Solution** We add to find the sum. We may either add the numbers as they are written (horizontally) or align them in a column. Here we write the numbers in a column and add in an order that makes the work a little easier.

$$\begin{array}{r}
 7 \\
 4 \\
 3 \\
 + 6 \\
 \hline
 20
 \end{array}$$



**Example 2** Four one-digit whole numbers are added. Is the sum more than or less than 40? How do you know?

**Solution** We do not know the numbers, so we do not know the sum. However, we know that the sum is **less than 40**, because the greatest one-digit number is 9, and the sum of four 9's is only 36. The sum of the four whole numbers is actually any whole number less than 37—including zero (if the four numbers were all zero).

If zero is added to any number, the sum is identical to that number. Here are some examples:

$$2 + 0 = 2 \quad 37 + 0 = 37 \quad 999 + 0 = 999$$

This property of addition is called the **identity property of addition**.

**Using the addition algorithm** In arithmetic we add, subtract, multiply, and divide numbers using *algorithms*. An **algorithm** is a procedure for getting an answer. Algorithms allow us to solve problems.

Adding money can help us understand the addition algorithm. Use your \$100, \$10, and \$1 money manipulatives to act out the following example.

**Example 3** Jamal had \$462. Maria paid Jamal \$58 rent when she landed on his property. Then how much money did Jamal have?

**Solution** First we will use bills to illustrate the story:  
Jamal had \$462.



Maria paid Jamal \$58 rent.



When Jamal added Maria's rent money to the money he already had, he ended up with four \$100 bills, eleven \$10 bills, and ten \$1 bills.



Jamal exchanged the ten \$1 bills for one \$10 bill. That gave Jamal twelve \$10 bills. Then he exchanged ten \$10 bills for one \$100 bill. That gave Jamal five \$100 bills and two \$10 bills.



5



2

This exchange of bills shows that Jamal had **\$520** after Maria paid him for rent.

Now we will show a pencil-and-paper solution that uses the addition algorithm. When using this addition algorithm, we are careful to line up digits that have the same place value.

$$\begin{array}{r} \text{Jamal had } \$462. \\ \text{Maria paid Jamal } \$58. \\ \hline \text{Then Jamal had ...} \end{array} \quad \begin{array}{r} \$462 \\ + \$ 58 \\ \hline \end{array}$$

First we add the ones, then the tens, and then the hundreds.

First add ones.  
Then add tens.  
Then add hundreds.

$$\begin{array}{r} 11 \\ \$462 \\ + \$ 58 \\ \hline \$520 \end{array}$$

Notice we exchange 10 ones for 1 ten. Then we exchange 10 tens for 1 hundred.

## LESSON PRACTICE

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**Practice set\*** Find each sum. When adding, look for combinations of numbers that add up to 10.

a.  $8 + 6 + 2$

b.  $4 + 7 + 3 + 6$

c.  $9 + 6 + 4$

d.  $4 + 5 + 6 + 7$

e.  $7 + 3 + 4$

f.  $2 + 6 + 3 + 5$

g.  $6 + 7 + 5$

h.  $8 + 7 + 5 + 3$

- i. The sum of 5 one-digit whole numbers is certain to be  
 A. greater than 4    B. less than 50    C. an odd number

Use the addition algorithm to find each sum. When putting the numbers into columns, remember to line up the last digits.

j. \$463 + \$158	k. 674 + 555	l. \$323
		\$142
m. 543 + 98	n. \$47 + \$485	<u>+ \$365</u>

### MIXED PRACTICE

---

- Problem set** 1. You may use money manipulatives to help answer the question in this story:

*Jamal had \$520. After Hannah paid him \$86 rent, how much money did Jamal have?*

2. Use words to name \$212.50.  
 (5)
3. In 274, which digit shows the number of hundreds?  
 (3)

Describe each number as odd or even:

4. 1234 (2)	5. 12,345 (2)	6. 1,234,567 (2)
----------------	------------------	---------------------

7. Use digits to write five hundred eight dollars.  
 (5)
8. Use words to name 580.  
 (5)

Find each sum. Look for combinations of 10.

9. 1 + 6 + 9 (6)	10. 7 + 6 + 4 (6)	
11. 8 + 3 + 1 + 7 (6)	12. 4 + 5 + 6 + 7 (6)	
13. \$436 (6) + \$527	14. 592 (6) + 408	15. 963 (6) + 79
		16. \$180 (6) + \$747

17. All the books were put into two piles. There was one more book in one pile than in the other pile. The total number of books in both piles could not be  
 A. 28    B. 29    C. 33    D. 55

Find the eighth term in each counting sequence:

18. 10, 20, 30, ... (1)	19. 6, 12, 18, ... (1)
20. 7, 14, 21, ... (1)	21. 8, 16, 24, ... (1)

22. Compare: nine hundred sixteen  $\bigcirc$  nine hundred sixty  
(4)
23. Write this comparison using digits and a comparison  
(4, 5) symbol:  
*Six hundred ninety is greater than six hundred nine.*
24. Compare:  $5 + 5 + 5 \bigcirc 4 + 5 + 6$   
(4, 6)
25. The smallest even two-digit whole number is 10. What is  
(2) the smallest odd two-digit whole number?
26. Is the smallest three-digit number odd or even?  
(2)
27. Is the 29th term in this counting sequence odd or even?  
(1, 2)  
2, 4, 6, 8, ...
28. Tabitha needs to read nine pages in her history book. If  
(2) she wants to read half of those pages before dinner, how many pages does she need to read?

## LESSON

## 7

# Writing and Comparing Numbers Through Hundred Thousands • Ordinal Numbers

## WARM-UP

**Facts Practice:** 100 Addition Facts (Test A)

**Mental Math:** Count up and down by 20's between 0 and 200.  
Count up and down by 200's between 0 and 2000.

- |                   |                    |                    |
|-------------------|--------------------|--------------------|
| a. $\$25 + \$25$  | b. $\$300 + \$450$ | c. $\$250 + \$250$ |
| d. $30 + 450$     | e. $\$75 + \$25$   | f. $\$750 + \$250$ |
| g. $\$50 + \$350$ | h. $360 + 360$     |                    |

**Problem Solving:**

The sum of 12 and 21 is 33. What is the sum of the six three-digit numbers that each have the digits 1, 2, and 3? If the six numbers are arranged vertically, what is the sum of the digits in each column? Why is the sum of the digits in each column the same?

## NEW CONCEPTS

**Writing and  
comparing  
numbers  
through  
hundred  
thousands**

We have practiced naming whole numbers with three or fewer digits. In this lesson we will begin naming whole numbers with four, five, and six digits.

The value of a digit depends upon its position in a number. The chart below lists the values of the first six whole-number places.



Commas are often used to write a whole number with many digits so that the number is easier to read. To place commas in a whole number, we count digits from the right-hand end of the number and insert a comma after every three digits.

54,321

The comma in this number marks the end of the thousands. To name this number, we read the number formed by the digits to the left of the comma and then say “thousand” at the comma. Finally, we read the number formed by the last three digits.

54,321

fifty-four thousand, three hundred twenty-one

Notice that we place a comma after the word *thousand* when we use words to name a number. Here we show some other examples:

\$27,050 twenty-seven thousand, fifty dollars

125,000 one hundred twenty-five thousand

203,400 two hundred three thousand, four hundred

Whole numbers with four digits may be written with a comma, but in this book four-digit whole numbers will usually be written without a comma.

**Example 1** Use words to name 52370.

*Solution* To help us read the number, we write it with a comma:

52,370

We name the number formed by the digits in front of the comma, write “thousand” and a comma, and then name the number formed by the digits after the comma. So 52,370 is **fifty-two thousand, three hundred seventy**.

**Example 2** Use digits to write one hundred fifty thousand, two hundred thirty-four.

*Solution* We use digits to write “one hundred fifty” and write a comma for the word *thousand*. Then we use digits to write “two hundred thirty-four.”

**150,234**

**Example 3** Compare: 23,465 ○ 23,654

*Solution* Since the digits in the ten-thousands place and thousands place match, we look to the hundreds place to make the comparison.

**23,465 < 23,654**

**Example 4** Three of the longest underwater tunnels in North America are in New York City. The Brooklyn-Battery Tunnel is 9117 feet long, the Lincoln Tunnel is 8216 feet long, and the Holland Tunnel is 8558 feet long. Write the names and lengths of these tunnels in order from shortest to longest.

**Solution** Arranging the numbers in order from least to greatest arranges the tunnels in order from shortest to longest: **Lincoln Tunnel (8216 feet), Holland Tunnel (8558 feet), Brooklyn-Battery Tunnel (9117 feet).**

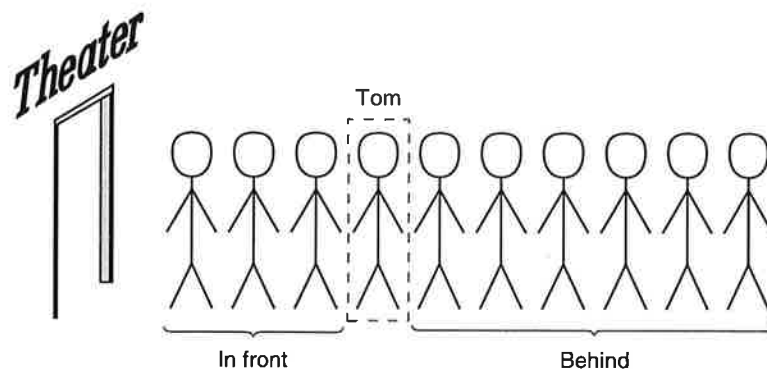
**Ordinal numbers** Numbers used to name position or order are called **ordinal numbers**. This table shows two ways to write the first twelve ordinal numbers:

**Ordinal Numbers for 1–12**

1st	first
2nd	second
3rd	third
4th	fourth
5th	fifth
6th	sixth
7th	seventh
8th	eighth
9th	ninth
10th	tenth
11th	eleventh
12th	twelfth

**Example 5** Tom was the fourth person in a line of ten people waiting for a movie. How many people were in front of Tom? How many people were behind Tom?

**Solution** We draw a picture to illustrate the problem.



By counting people in our picture, we find that there were **three people in front** of Tom and **six people behind** him.

## LESSON PRACTICE

**Practice set\*** Use words to name each number. (*Hint:* Begin by writing the number with a comma.)

- a. 36420
- b. \$12300
- c. 4567

Use digits to write each number:

- d. sixty-three thousand, one hundred seventeen
- e. two hundred fifty-six thousand, seven hundred
- f. fifty thousand, nine hundred twenty-four
- g. seven hundred fifty thousand dollars
- h. Christina was the sixth person in a line of ten people. How many people were in front of Christina, and how many people were behind her?

## MIXED PRACTICE

**Problem set** 1. You may use money manipulatives to help answer the question in this story:

*Hannah had \$462. After she was paid \$88 rent, how much money did Hannah have?*

- 2. Which digit is in the tens place in 567?
- 3. Use digits to write seven hundred seven.
- 4. Mount Everest in Asia has the highest peak in the world. The peak is 29,035 feet above sea level. Use words to name this height.
- 5. Find the sum of 54 and 246.

Find each sum:

$$\begin{array}{r} 6. \quad \$463 \\ (6) \quad + \$364 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad \$286 \\ (6) \quad + \$414 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 709 \\ (6) \quad + 314 \\ \hline \end{array}$$

Find the seventh term in each counting sequence:

$$9. \quad 10, 20, 30, \dots$$

(1)

$$10. \quad 5, 10, 15, \dots$$

(1)



11. 6, 12, 18, ...  
(1)

12. 7, 14, 21, ...  
(1)

13. 8, 16, 24, ...  
(1)

14. 9, 18, 27, ...  
(1)

15. Compare: two hundred fifty  $\bigcirc$  two hundred fifteen  
(4)

16. Compare. (Try to answer the comparison without adding.)  
(4, 6)

$$365 + 366 \bigcirc 365 + 365$$

Find each sum:

17. \$436  
(6) \$ 72  
+ \$ 54

18. 361  
(6) 493  
+ 147

19. 506  
(6) 79  
+ 434

20. Write this comparison using digits and a comparison symbol:  
(4, 5)

*Four hundred eight is less than four hundred eighty.*

21. We can count to 24 by 2's or by 3's. We do not count to 24  
(1) when counting by

A. 4's

B. 5's

C. 6's

D. 8's

Describe each number as odd or even:

22. 1969  
(2)

23. 1492  
(2)

24. 1776  
(2)

25. The smallest even three-digit number is 100. What is the  
(2) smallest odd three-digit number?

26. Of the twelve people in line, Rosario was fifth. How  
(7) many people were in front of Rosario? How many were behind her?

27. Is the twentieth term in this counting sequence odd or even?  
(2)

$$1, 3, 5, 7, \dots$$

28. Five birds were perched on a branch. Could half of the  
(2) birds fly away? Why or why not?

## LESSON

## 8

Subtraction Facts •  
Fact Families

## WARM-UP

**Facts Practice:** 100 Addition Facts (Test A)

**Mental Math:** Count up and down by 50's between 0 and 500.  
Count up and down by 500's between 0 and 5000.

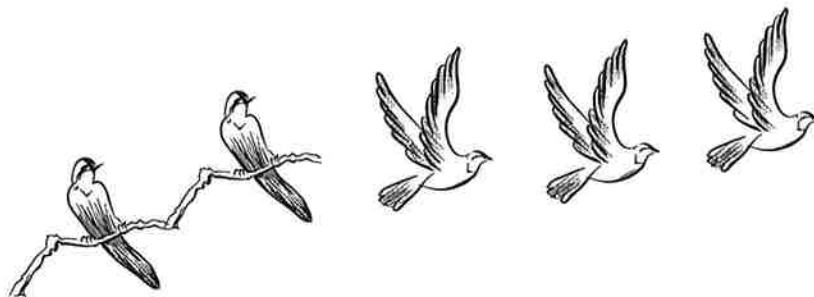
- |                  |                   |                    |
|------------------|-------------------|--------------------|
| a. $3000 + 3000$ | b. $5000 + 5000$  | c. $350 + 450$     |
| d. $370 + 580$   | e. $\$275 + \$25$ | f. $\$350 + \$500$ |
| g. $750 + 750$   | h. $250 + 750$    |                    |

**Problem Solving:**

The sum of the six numbers that have the digits 1, 2, and 3 is 1332. What is the sum of the six three-digit numbers that each have the digits 2, 4, and 6? What do you notice about the two sums?

## NEW CONCEPTS

**Subtraction facts** Subtraction involves taking one number from another number. If five birds were perched on a branch and three flew away, then two birds would be left on the branch.



A number sentence for this story is

$$5 - 3 = 2$$

We read this number sentence, "Five minus three equals two." The dash (-) between the 5 and the 3 is called a **minus sign**. The minus sign tells us to subtract the number to the right of the sign from the number to the left of the sign. Order matters when we subtract. The answer to  $5 - 3$  does not equal the answer to  $3 - 5$ . When we see  $5 - 3$ , we must start with 5 and subtract 3.

When a subtraction problem is written in a column (with one number above the other) we start with the top number and subtract the bottom number. The two forms below mean the same thing. With both forms, we start with 5 and subtract 3.

$$5 - 3 = 2 \qquad \begin{array}{r} 5 \\ - 3 \\ \hline 2 \end{array}$$

The answer when we subtract is called a **difference**. We can say “the difference of 5 and 3 is 2.”

**Example 1** When 7 is subtracted from 12, what is the difference?

**Solution** We start with 12 and subtract 7. If we write the numbers horizontally, we write the 12 on the left. If we write the numbers in a column, we position the 12 on top and the 7 below the 2 in 12. This way, digits with the same place value are in the same column. We find that the difference of 12 and 7 is 5.

$$12 - 7 = 5 \qquad \begin{array}{r} 12 \\ - 7 \\ \hline 5 \end{array}$$

**Example 2** What is 8 minus 3?

**Solution** The word *minus* means “take away.” For this problem, we take 3 away from 8. When we see the word *minus*, we may put a minus sign in its place. We find that 8 minus 3 equals 5.

$$8 - 3 = 5 \qquad \begin{array}{r} 8 \\ - 3 \\ \hline 5 \end{array}$$

**Fact families** Addition and subtraction are closely related. We say that addition and subtraction are **inverse operations** because one operation “undoes” the other. If we add 3 to 5, we get 8. If we then subtract 3 from 8, we again have 5. By subtracting 3, we undo the addition of 3.

For every addition fact we can form a subtraction fact. With the numbers 2, 3, and 5, for example, we can form two addition facts and two subtraction facts.

$$\begin{array}{r} 2 \\ + 3 \\ \hline 5 \end{array} \qquad \begin{array}{r} 5 \\ - 3 \\ \hline 2 \end{array} \qquad \begin{array}{r} 3 \\ + 2 \\ \hline 5 \end{array} \qquad \begin{array}{r} 5 \\ - 2 \\ \hline 3 \end{array}$$

We call the three numbers 2, 3, and 5 a **fact family**.

**Example 3** Write two addition facts and two subtraction facts for the fact family 3, 4, and 7.

*Solution*  $3 + 4 = 7$      $4 + 3 = 7$      $7 - 3 = 4$      $7 - 4 = 3$

### LESSON PRACTICE

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**Practice set** Subtract:

a.  $17 - 9$

b.  $12 - 8$

c.  $15 - 9$

d.  $11 - 5$

e.  $17 - 8$

f.  $16 - 8$

Write two addition facts and two subtraction facts for each fact family:

g. 7, 8, 15

h. 5, 7, 12

### MIXED PRACTICE

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**Problem set**

1. Which digit in 3654 is in the thousands place?  
(7)
2. List the five odd, one-digit numbers.  
(2)
3. When seven is subtracted from 15, what is the difference?  
(8)
4. When 56 is added to 560, what is the sum?  
(6)
5. What is seven minus four?  
(8)
6. What is sixty-four plus two hundred six?  
(6)
7. Use words to name \$812,000.  
(7)
8. Use digits to write eight hundred two.  
(5)
9. Write a two-digit odd number using 5 and 6.  
(2)
10. Use words to name the number for "4 hundreds plus 4 tens plus 4 ones."  
(3)

Describe the rule for each counting sequence, and write the ninth term.

11. 6, 12, 18, ...  
(1)

12. 3, 6, 9, ...  
(1)

13. Write two addition facts and two subtraction facts for the  
(8) fact family 4, 8, and 12.

14. Think of two odd numbers and add them. Is the sum odd  
(2) or even?

Subtract to find each difference:

15.  $18 - 9$   
(8)

16.  $15 - 7$   
(8)

17.  $12 - 5$   
(8)

18.  $11 - 8$   
(8)

19.  $14 - 6$   
(8)

20.  $13 - 9$   
(8)

Add to find each sum:

21.  $\$36 + \$403 + \$97$   
(6)

22.  $572 + 386 + 38$   
(6)

23.  $47 + 135 + 70$   
(6)

24.  $\$590 + \$306 + \$75$   
(6)

25. If the greatest odd number in the list below is added to the  
(2, 4, 6) smallest even number in the list, then what is the sum?

364    287    428    273

26. Write the smallest four-digit whole number. Is the number  
(2) odd or even?

27. Half of the 18 students were girls. How many girls were  
(2) there?

28. From Tom's house to school and back is five miles. How  
(2) far is it from Tom's house to school?