LESSON 11

• Place Value

Power Up

facts

Power Up 11

jump start

Count up by 10s from 0 to 100.
Count up by 25s from 0 to 200.

Draw hands on your clock to show "quarter to 10." It is night. Write the time in digital form.

Mark your thermometer to show 36°F.

mental math

a. Number Sense: Use the numbers 4, 5, and 9 to write a subtraction fact.

b. Number Sense: 9 + 1 + 3

c. Number Sense: 8 + 2 + 3

d. Money: Find the value of these coins:

problem solving

Kaniyah drew this number line.

She forgot to label two of the tick marks. What two numbers are missing? Explain your answer.

New Concept

There are ten **digits** in our number system:

0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

These 10 digits can be used to make any number. The number 247 has three digits, 2, 4, and 7.

Each digit in a number has a place value. The **place value** of a digit is decided by its position in the number. We can write the number 247 in a place value chart.

Hundreds	Tens	Ones
2	4	7

The 2 in the hundreds place has a value of 2 hundreds or 200.

The 4 in the tens place has a value of 4 tens or 40.

The 7 in the ones place has a value of 7 ones or 7.

Money can help us understand our number system. For example, we can use $100 bills, $10 bills, and $1 bills to show place value.

Hundreds	Tens	Ones
		

Read this story and see if you can figure out how much money Cindy had.

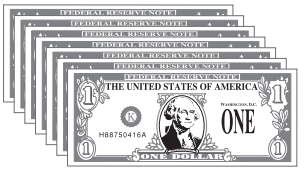
> *Cindy played a board game with her friends. At the end of the game, Cindy counted all of her money. She had three $10 bills, seven $1 bills, and five $100 bills. How much money did Cindy have?*

We will place the bills in three groups. The $100 bills have the greatest value. We place the $100 bills on the left. Next we place the $10 bills beside them. Then we place the $1 bills to the right.

5

3

7



We see that Cindy had five hundreds, three tens, and seven ones. She had 537 dollars, which we can write as $537 or $537.00.

Activity

Place Value

Materials: **Lesson Activity 6** and **Lesson Activities 7–9** or money manipulatives (bills only)

> *Cindy's friend counted her money at the end of the game. She had eight $1 bills, four $100 bills, and nine $10 bills. How much money did Cindy's friend have?*

Use your place value chart and bills to show how much money Cindy's friend has. Write this amount of money using a dollar sign.

Example 1

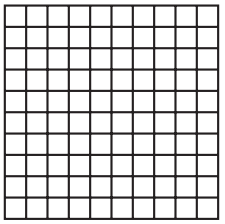
Matt counted his money. He had six $1 bills, four $100 bills, and three $10 bills. How much money did Matt have?

We arrange the money mentally: first hundreds, then tens, then ones.

4 hundreds, 3 tens, 6 ones

Matt had $436.

We can also show place value using base-10 blocks.



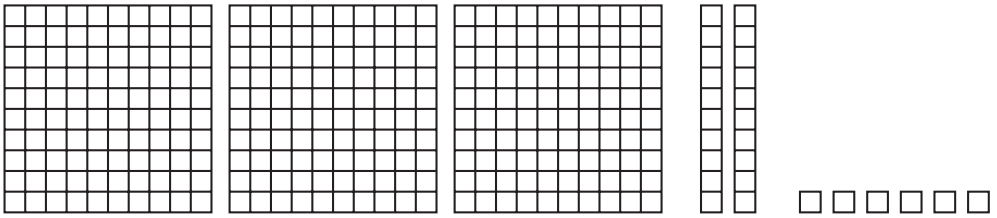
A flat has 100 cubes.
It has a value of 100.

A 10-stick has 10 cubes.
It has a value of 10.

A unit cube is 1 cube.
It has a value of 1.

Example 2

Write the number shown using digits.



3 hundreds 2 tens 6 ones

The number shown is **326.**

Model Use money manipulatives to show the number 326.

When we show the value of each place of a number, we are writing the number in **expanded form.** The place value chart below shows the number 362.

Hundreds	Tens	Ones
3	6	2

300 + 60 + 2

The three is in the hundreds place. It has a value of 3 hundreds or 300.

The six is in the tens place. It has a value of 6 tens or 60.

The two is in the ones place. It has a value of 2 ones or 2.

The expanded form of 362 is **300 + 60 + 2.**

Example 3

Use bills to show $320. Then write 320 in expanded form.

3 2

Expanded form: **300 + 20**

Model Use base-10 blocks to show the number 320.

Lesson Practice

a. Nate had seven $10 bills, three $100 bills, and two $1 bills. How much money did Nate have?

b. Add: $200 + $5 + $70

Use bills to show each number. Then write each number in expanded form.

c. 54 **d.** 230

e. 403 **f.** 324

Written Practice

Distributed and Integrated

1. In expanded form, 250 is 200 + 50. Write 520 in expanded form. *(11)*

2. How much money is five $10 bills and four $1 bills? *(11)*

3. **Analyze** How much money is three $100 bills, six $1 bills, and five $10 bills? What digit is in the hundreds place? *(11)*

4. **Multiple Choice** How many minutes is a quarter of an hour? *(5)*

A 15 minutes **B** 30 minutes **C** 45 minutes **D** 60 minutes

5. Write 365 in expanded form. *(11)*

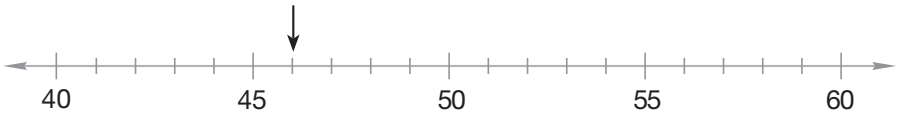
Generalize Write the next four numbers in each sequence. Write the rule for each.

6. 7, 14, 21, 28, _____, _____, _____, _____, . . . *(2)*

7. 30, 27, 24, _____, _____, _____, _____, . . . *(2)*

8. Find the sum of 5, 9, and 5. *(10)*

9. To what number is the arrow pointing? *(4)*



10. The minute hand of a clock points to what number at 8:10? *(3)*

Find each answer:

11. $200 + $30 + $5 *(11)*

12. 8 + 2 + 3 *(10)*

13. $6 + 4 + 2$
(10)

14. $10 - 6$
(7)

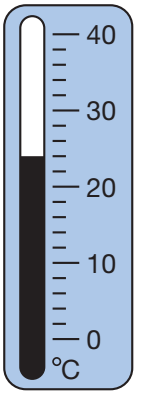
15. Use 2, 7, and 9 to write two addition facts and two subtraction facts.
(8)

Find the missing addend:

16. $6 + m = 14$
(9)

17. $7 + m = 10$
(9)

18. What temperature is shown on this thermometer?
(4)



19. Write a quarter after six in the morning in digital form.
(5)

20. Use the words "addend" and "sum" to name each number in this addition problem: $3 + 7 = 10$.
(6)

Early Finishers
Real-World Connection

Jin was asked to solve this riddle.

> *What number am I? I have three digits. There is a 6 in the tens place, a 9 in the ones place, and a 4 in the hundreds place.*

Jin said the answer to the riddle was 694. Did Jin give the correct answer? Explain.

LESSON 12

• Reading and Writing Numbers Through 999

Power Up

facts

Power Up 12

jump start

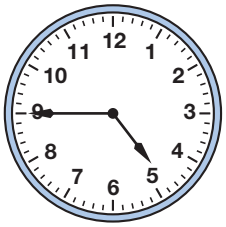
Count up by 2s from 0 to 30.
Count up by 5s from 0 to 60.

Draw hands on your clock to show "half past 5." It is morning. Write the time in digital form.

Mark your thermometer to show 12°F.

mental math

a. **Time:** It is morning. What time will it be 2 hours after the time shown on this clock?



b. **Number Sense:** 7 + 3 + 4

c. **Number Sense:** 7 + 7

d. **Number Sense:** 8 + 10

problem solving

Beth had 4 coins in her hand. As she counted up to find the total value of the coins, she said, "10¢, 15¢, 16¢, 17¢." What coins does Beth have in her hand?

New Concept

We can write numbers using words or digits. To write the names of whole numbers through 999 (nine hundred ninety-nine), we need to know number words and how to put them together.

We can use the following number words to write all 1,000 numbers from 0–999:

0	zero	10	ten	20	twenty
1	one	11	eleven	30	thirty
2	two	12	twelve	40	forty
3	three	13	thirteen	50	fifty
4	four	14	fourteen	60	sixty
5	five	15	fifteen	70	seventy
6	six	16	sixteen	80	eighty
7	seven	17	seventeen	90	ninety
8	eight	18	eighteen	100	one hundred
9	nine	19	nineteen		

We write a hyphen between two number words that are combined to name a two-digit number. Here are some examples of numbers that are written with a hyphen.

24	twenty-four
37	thirty-seven
568	five hundred sixty-eight

Analyze What is the place value of the number word before the hyphen?

Example 1

Use digits to write two hundred seventy-five.

275

Example 2

Use words to name $384.

Notice that we do not use the word "and" when we name the number.

Three hundred eighty-four dollars

Example 3

Write the total amount of money shown using words and numbers.

$231, two hundred thirty-one dollars

Lesson Practice

Use numbers and a dollar sign to write the following.

a. six hundred twenty-five dollars

b. two hundred eight dollars

Use words to write each amount.

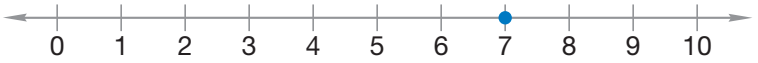
c. $648 **d.** 706

e. Write the amount of money shown with numbers and words.

Written Practice

Distributed and Integrated

1. *(4)* Look at the number line. The dot represents what number?



2. *(11)* **Analyze** In expanded form, 360 is 300 + 60. Write 640 in expanded form. What digit is in the ones place?

3. *(11, 12)* Joan has five $10 bills and nine $1 bills. Name that amount using words and using a dollar sign and digits.

4. *(1, 7)* **Formulate** How many months of the year are left after the fifth month? How would you write this as a subtraction number sentence?

Generalize Write the next four numbers in each sequence. Write the rule for each.

5. (2) 6, 12, 18, 24, _____, _____, _____, _____, . . .

6. (2) 44, 40, 36, _____, _____, _____, _____, . . .

7. (12) Use words to write $683.

8. (12) The greatest three-digit counting number is nine hundred ninety-nine. Use digits to write that number.

Find each answer:

9. (11) $600 + $7 + $50

10. (6) 6 + 8

11. (10) 4 + 2 + 7

12. (6) 9 + 7

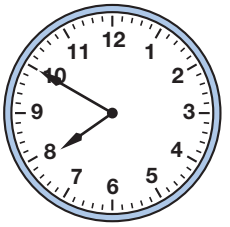
13. (7) 9 − 5

14. (7) 8 − 5

15. (4) Draw a number line with a tick mark for each number from 1 to 5. Draw a dot on the number 2.

16. (9) Find the missing addend: $5 + x = 9$

17. (3) On Monday morning Larry arrived at school at the time shown on this clock. What time was it?



18. (8) Use 3, 5, and 8 to write two addition facts and two subtraction facts.

19. (1) Ben was eighth in line. Brenda was twelfth in line. How many people were between Ben and Brenda?

20. (1, 10) **Multiple Choice** What is the total number of days in two weeks and two days?

A 14 days **B** 15 days **C** 16 days

LESSON 13

• Adding Two-Digit Numbers

Power Up

facts Power Up 13

jump start

Count up by 10s from 0 to 100 and back down to 0.

Draw hands on your clock to show "quarter past 4." It is afternoon. Write the time in digital form.

Mark your thermometer to show 8°C.

mental math

a. Time: What is the time 4 hours before 9:30 p.m.?

b. Patterns: 60, 50, _____, 30, 20

c. Number Sense: 8 + 6

d. Number Sense: $3 + $10

problem solving

Focus Strategy: Act It Out or Make a Model

Sam has six $1 bills. He makes two equal groups with the bills. How much money is in each group?

Understand We are asked to find how much money is in each group that Sam made.

Plan We can use money manipulatives to act out the problem.

Solve We make two equal groups of $1 bills:

$3 $3

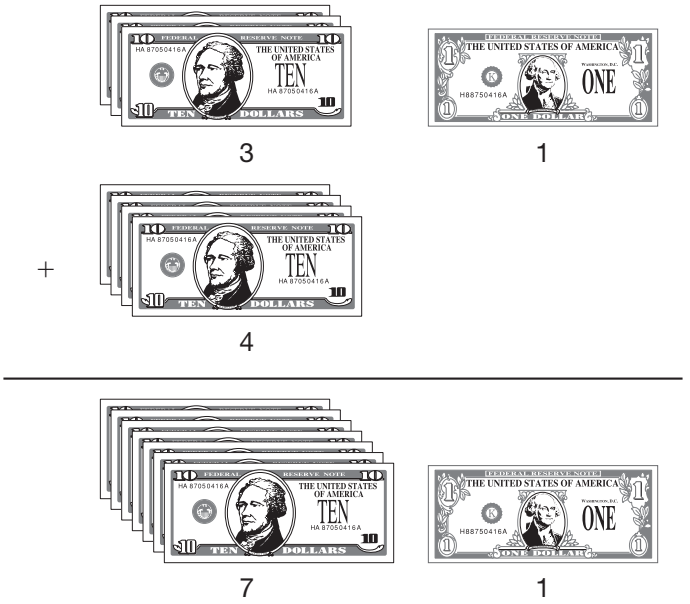
We see that there are three $1 bills in each group.

Check It makes sense that each group contains $3, because $3 + $3 = $6.

New Concept

We can use money manipulatives to help us add two-digit numbers. We will use $10 bills to show the digits in the tens place. We will use $1 bills to show the digits in the ones place.

We can use $10 bills and $1 bills to add $31 to $40. First, we show $31. Next, we show $40. Then, we combine the bills.



The total is 7 tens and 1 one, which is **$71.**

To add the numbers with pencil and paper, we line up the digits by their place value. Next, we add the digits in the ones place. Then, we add the digits in the tens place.

Add ones.
Add tens.

$$\begin{array}{r} 31 \\ +\ 40 \\ \hline 71 \end{array}$$

Discuss Why is it important to keep the digits lined up when we add?

Activity

Regrouping

Materials: $10 bills and $1 bills, **Lesson Activity 6**

Malik has five $10 bills and twelve $1 bills. How much money does he have?

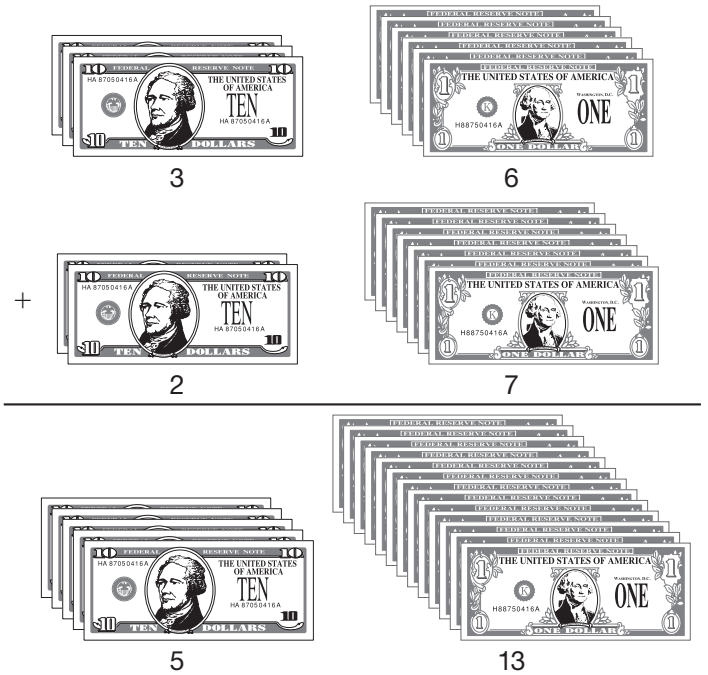
1. Place five $10 bills in the tens column on the place value chart.
2. Place twelve $1 bills in the ones column on the place value chart. Use your remaining money manipulatives as the "bank."
3. We cannot write a 12 in the ones place. We need to trade ten of the $1 bills for one $10 bill.
4. When we trade, we call this regrouping.
   a. Take ten of the $1 bills to the bank and trade them for one $10 bill.
   b. Add the $10 bill to the tens column.
5. Count the number of tens and the number of ones. How much money does Malik have?

Discuss When do we regroup $1 bills?

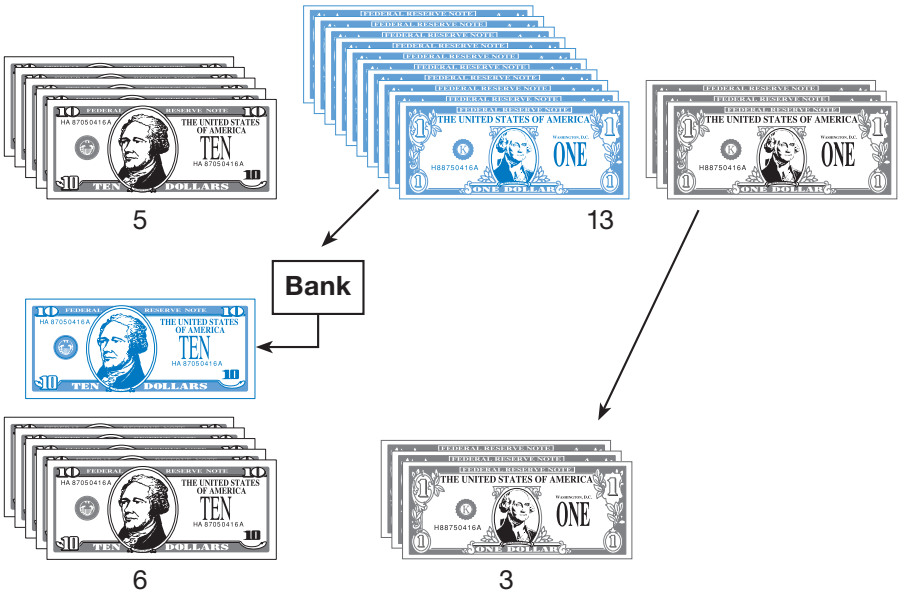
Example

Use money manipulatives to add 36 and 27.

First, we show $36. Next, we show $27. Then, we combine the $10 bills and the $1 bills.



Since there are thirteen $1 bills, we regroup ten of the $1 bills into one $10 bill.



Now we have 6 tens and 3 ones, which is **63.**

To add the numbers with pencil and paper, we line up the digits. Next, we add the ones and get 13.

Add ones.

$$\begin{array}{r} 36 \\ +\ 27 \\ \hline 13 \end{array}$$

Thirteen ones is the same as 1 ten and 3 ones. We write the 3 in the ones place and add the 1 ten to the other tens. We show this by writing a 1 above the column of tens. Then we add the tens.

Add ones.
Add tens.

$$\begin{array}{r} {\scriptstyle 1} \\ 36 \\ +\,27 \\ \hline 63 \end{array}$$

Lesson Practice

Model Use your money manipulatives to add:

a. \$60 + \$22 **b.** 10 + 49 + 30

c. 30 + 20 + 5 **d.** \$20 + \$20

e. How much money is four \$10 bills and eleven \$1 bills?

Add:

f. \$39 + \$23 **g.** 26 + 52 **h.** 35 + 16

Written Practice

Distributed and Integrated

1. (11, 12) **Analyze** Use words to write \$526. What digit is in the tens place?

2. (13) Add \$30 + \$30.

3. (11) Write 256 in expanded form.

4. (1, 7) How many months are left in the year on the last day of September?

Generalize Write the next four numbers in each sequence. Write the rule for each.

5. (2) 55, 50, 45, 40, _____, _____, _____, _____, . . .

6. (2) 14, 21, 28, 35, _____, _____, _____, _____, . . .

7. Add \$53 and \$10.
(13)

8. Use digits and a dollar sign to write five hundred twenty-four dollars.
(12)

9. How many minutes are equal to half an hour?
(5)

Find each answer.

10. \$60 + \$20
(13)

11. 15 + 19
(13)

12. \$80 + \$500
(11)

13. \$5 + \$300 + \$40
(11)

14. 12 − 2
(7)

15. 9 − 2
(7)

16. Three pennies plus 7 pennies equals 10 cents. Use 3, 7, and 10 to write two addition facts and two subtraction facts.
(8)

17. How do you write a quarter to eight in the morning in digital form?
(5)

Find the missing addend:

18. $6 + g + 7 = 14$
(9)

19. $45 + m = 55$
(9)

20. **Analyze** Write November 10, 1998, in month/day/year form. How many months are before November in the year?
(1)

Early Finishers
Real-World Connection

Smithfield Elementary is having a fall festival. The festival begins at 4:00 p.m. and ends at 7:00 p.m. Every fifteen minutes a student's name will be drawn to win a pumpkin. The last student's name will be drawn when the festival ends. How many students will win a pumpkin before the festival is over? You may wish to use a clock to help find the answer.

LESSON 14

• Subtracting Two-Digit Numbers

Power Up

facts Power Up 14

jump start

Count up by 7s from 0 to 35.
Count up by 100s from 0 to 1000.

Draw hands on your clock to show a "quarter of noon." Write the time in digital form.

Mark your thermometer to show 48°F.

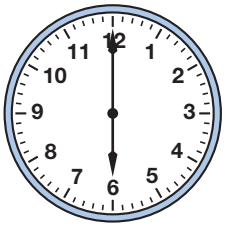
mental math

a. Fact Family: Find the missing number in this fact family:

$3 + \square = 7$ $\quad$ $7 - \square = 3$

$\square + 3 = 7$ $\quad$ $7 - 3 = \square$

b. Time: It is morning. What time was it 3 hours before the time shown on this clock?



c. Number Sense: $6 + 10 + 1$

d. Number Sense: $6 + 9$

problem solving Sharon and Letrisa are planning a nature hike. If Sharon brings 4 bottles of water to share, how many bottles can each girl have?

New Concept

In this lesson we will use money manipulatives and pencil and paper to subtract two-digit numbers.

Read this story and see if you can figure out how much money Daniel has.

> *Daniel had saved $35. He spent $12 on a birthday present for his sister. How much money does Daniel have left?*

First we show $35. Then we take away $12.

We see that Daniel has **$23** left.

To subtract the numbers with pencil and paper, we line up the digits by their place value. First, we subtract the digits in the ones place. Then we subtract the digits in the tens place.

First subtract ones.
Then subtract tens.

$$\begin{array}{r} 35 \\ -\ 12 \\ \hline 23 \end{array}$$

Activity

Regrouping for Subtraction

Materials: $10 bills and $1 bills, **Lesson Activity 6**
Subtract: $75 − $28

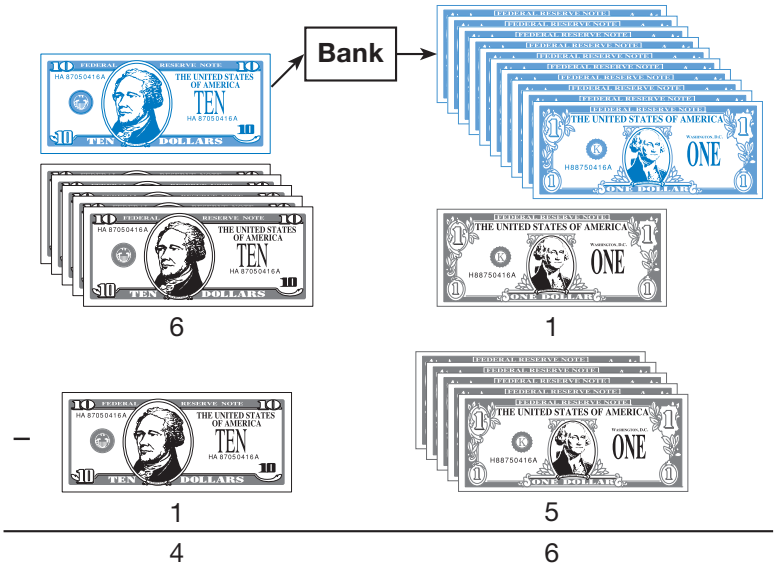
1. Place seven $10 bills in the tens column on the place value chart.
2. Place five $1 bills in the ones column on the place value chart.
3. Can we take away eight $1 bills?
4. What can we do since we can't take away $8?

5. Take one $10 bill and trade it for ten $1 bills. Add the ten $1 bills to the ones column.
6. Can we take away eight $1 bills now?
7. How many $10 bills do we have now?
8. Can we take away two $10 bills?
9. What is $75 − $28?

Example

Use money manipulatives to subtract 61 and 15.

First, we regroup $61 into 5 tens and 11 ones. Next, we take away $15.



We have 4 tens and 6 ones left over, which is **46.**

$$\begin{array}{r} 5 \\ \cancel{6}\,{}^{1}1 \\ -\ 1\ 5 \\ \hline 4\ 6 \end{array}$$

To subtract with paper and pencil, we write the first number on top. Next, we rewrite 61 as 5 tens and 11 ones. Then, we subtract the digits in the ones place and the digits in the tens place.

Discuss When do we need to regroup to subtract?

Lesson Practice Subtract. You may use your money manipulatives.

a. 81 − 30 **b.** $97 − $55

c. 14 − 10 **d.** $56 − $27

e. 35 − 19 **f.** $43 − $35

Written Practice

Distributed and Integrated

1. Use words to write $247.
(12)

2. Write 247 in expanded form.
(11)

3. List the months of the year that have exactly 30 days.
(1)

Generalize Write the first four numbers in each sequence:

4. _____, _____, _____, _____, 90, 100, 110, 120, . . .
(2)

5. _____, _____, _____, _____, 54, 63, 72, 81, . . .
(2)

Add or subtract, as shown.

6. $50 − $40
(14)

7. $50 + $20
(13)

8. $46 − $32
(14)

9. $37 + $20
(13)

10. Use digits and a dollar sign to write eight hundred nineteen dollars.
(12)

11. **Connect** A nickel plus a dime is 15 cents. Use the value of the coins to write two addition facts and two subtraction facts.
(8)

Add or subtract, as shown:

12. $27 + $28
(13)

13. 7 + 5 + 2
(10)

14. $55 − $27
(14)

15. 5 + 5 + 5
(10)

16. Write "a quarter after four in the morning" in digital form.
(5)

17. **Multiple Choice** Which problem has a sum of 10?
(6)
A 5 + 10 = 15 **B** 10 = 6 + 4 **C** 10 + 3 = 13 **D** 10 + 10 = 20

Analyze Find the missing addend:

18. 90 + m + 10 = 110
(9)

19. 5 + m + 10 = 25
(9)

20. Subtract: 11 − 4
(7)

LESSON 15

• Rounding to the Nearest Ten and Hundred

Power Up

facts

Power Up 15

jump start

Count up by 5s from 50 to 100.
Count up by 25s from 0 to 200.

Draw hands on your clock to show "half past 1." It is afternoon. Write the time in digital form.

Mark your thermometer to show 24°F.

mental math

a. Fact Family: Find the missing number in this fact family:

$$\square + 6 = 8 \quad 8 - \square = 6$$
$$6 + \square = 8 \quad 8 - 6 = \square$$

b. Expanded Form: Write 47 in expanded form.

c. Number Sense: 7 + 9

d. Money: Find the value of these coins:

problem solving

Draw a square on your paper. Then draw a straight line across the square from one corner to the opposite corner. What shapes do you see inside the square?

New Concepts

One of the sentences below states exactly how much a radio costs. The other sentence states about how much the radio costs. Can you tell which sentence uses a rounded price?

The radio costs about $50.

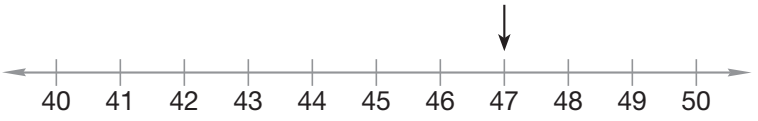
The radio costs $47.

The first sentence uses a rounded price. We often **round** exact numbers to nearby numbers that are easier to work with and to understand.

In this lesson we will practice rounding amounts of money to the nearest ten dollars and the nearest hundred dollars.

To round an exact number to the nearest ten, we find the closest number that ends in zero. Those are the numbers we say when we count by tens (10, 20, 30, 40, and so on).

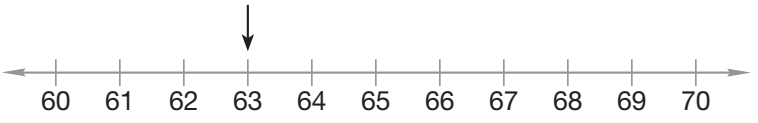
We will use this number line to round 47 to the nearest ten.



We see that 47 is between 40 and 50. Since 47 is closer to 50 than to 40, we round 47 to 50. We say that 47 is "about" 50. When rounding to the nearest ten, we look at the ones place. If the digit is 5 or greater, we round up.

Example 1

The price of the jacket is $63. What is the price to the nearest ten dollars?



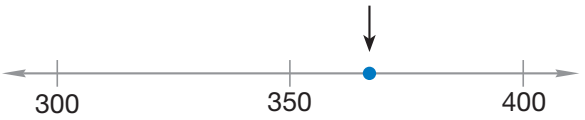
We know that $63 is between $60 and $70. Since $63 is closer to $60 than to $70, we round $63 down to **$60.** We can say that $63 is about $60.

Now we will learn to round numbers to the nearest hundred. To round an exact number to the nearest hundred, we find the closest number that ends in two zeros. Those are the numbers we say when we count by hundreds (100, 200, 300, 400, and so on). When rounding to the nearest hundred, we look at the tens place. If the digit is 5 or greater, we round up.

Example 2

The camera cost $367. What is the price to the nearest hundred dollars?

The number 367 is between 300 and 400. Halfway between 300 and 400 is 350. Since 367 comes after 350, it is closer to 400 than it is to 300. We see this on the number line below.



The number line shows why $367 rounded to the nearest hundred is **$400.** We can say that $367 is about $400.

Example 3

Jasmine bought a computer game that cost $49 and a new baseball glove that cost $28. Round the prices to help you find about how much money she spent.

This is a some and some more story. Jasmine spent some money and then spent some more money. We are asked to find "about" how much money she spent.

We begin by writing the addition problem from the story.

$49	rounds to	$50
+ $28	rounds to	+ $30
		$80

The word "about" in the question tells us that the answer may be a rounded number. To answer the question, we may round the numbers in the story.

Last, we add the rounded numbers.

Since $50 + $30 = $80, we know that the total is $80. **Jasmine spent about $80.**

Verify Add 49 + 28. How can rounding help you decide if your answer is reasonable?

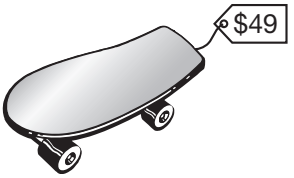
Lesson Practice

Round these prices to the nearest ten dollars:

a.

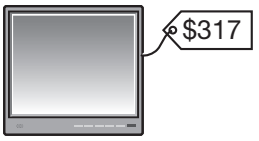
b.

c.



Round these prices to the nearest hundred dollars:

d.



e.

f.

g. Write a number sentence for this story after rounding the numbers. Then write a complete sentence to answer the question.

> *Last weekend Frank made muffins to sell at the carnival. He made 38 muffins on Saturday and 23 muffins on Sunday. About how many muffins did Frank make on Saturday and Sunday? (Hint: To find the answer, first round both numbers to the nearest ten.)*

Written Practice

Distributed and Integrated

1. The refrigerator cost $894. Use words to write $894.
(12)

2. Write 894 in expanded form.
(11)

3. (15) **Multiple Choice** Jamal bought a shirt for $28 and pants for $33. About how much did the shirt and pants cost? (*Hint:* Round the prices before adding.)

A $50 **B** $60 **C** $70 **D** $80

4. (15) Round these amounts to the nearest ten.

a. $24 **b.** $36

5. (15) Round these amounts to the nearest hundred.

a. $621 **b.** $876

Add or subtract as shown.

6. (14) $75 − $50

7. (11) $500 + $50

8. (14) $31 − $15

9. (13) $35 + $16

10. (8) Use 5, 6, and 11 to write two addition facts and two subtraction facts.

11. (4) **Represent** Draw a number line from 50–60 with one tick mark for each number. Label 50, 55, and 60. Draw dots at 52, 54, and 57.

12. (15) Is $768 closer to $700 or $800?

13. (12) Use digits and a dollar sign to write seven hundred eighty-six dollars.

Add or subtract, as shown:

14. (10, 13) $30 + $30 + $30

15. (14) $42 − $12

16. (15) **Generalize** What are the next four numbers in this sequence? Write the rule.

8, 16, 24, 32, _____, _____, _____, _____, . . .

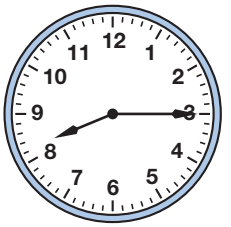
Find the missing addend:

17. (9) $100 = 60 + m$

18. (9) $4 + q = 11$

19. (2) **Verify** $27 rounds to 30. Explain why this is correct.

20. (3, 5) It is morning. What time is shown on this clock? Write the time twice, once with digits and once with words.



Early Finishers

Real-World Connection

Austin walks his neighbor's dog every day for three months to earn money for a new scooter. Would he make more money if he walks his neighbor's dog for the months of February, March, and April, or June, July, and August? Explain your answer.