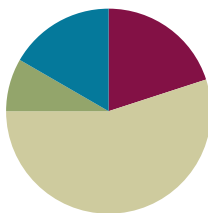


Lesson 11

Objective: Add and subtract tens from a multiple of 10.

Suggested Lesson Structure

| | |
|---------------------|---------------------|
| Fluency Practice | (12 minutes) |
| Application Problem | (5 minutes) |
| Concept Development | (33 minutes) |
| Student Debrief | (10 minutes) |
| Total Time | (60 minutes) |



Fluency Practice (12 minutes)

- Compare Numbers **1.NBT.3, 1.OA.6** (5 minutes)
- Number Bond Addition and Subtraction **1.OA.6** (5 minutes)
- Happy Counting by Tens **1.NBT.5** (2 minutes)

Compare Numbers (5 minutes)

Materials: (S) Personal white board

Note: In this fluency activity, students review yesterday's lesson and use their understanding of place value to compare numbers.

Say and write sets of numbers from 0 to 40 in various ways (e.g., as numerals, as tens and ones, the Say Ten way). Students write a number sentence in the same order it is written on the board and then read their sentences aloud.

Suggested sets:

- 5 and 8, 15 and 18, 25 and 28
- 6 and 3, ten 6 and ten 3, 2 tens 6 and 2 tens 3
- 3 and 3, 3 tens and 3 tens, 3 tens and 3 ones
- 3 and 4, 3 tens 4 ones and 4 tens 3 ones, 3 ones 4 tens and 4 ones 3 tens

Teacher:

$$5 \bigcirc 8$$

$$15 \bigcirc 18$$

$$25 \bigcirc 28$$

Student:

$$5 < 8$$

$$15 < 18$$

$$25 < 28$$

Teacher:

$$6 \bigcirc 3$$

$$\text{ten } 6 \bigcirc \text{ten } 3$$

$$2 \text{ tens } 6 \bigcirc 2 \text{ tens } 3$$

Student:

$$6 > 3$$

$$16 > 13$$

$$26 > 23$$

Number Bond Addition and Subtraction (5 minutes)

Materials: (S) Personal white board

Note: By reviewing the relationship between addition and subtraction within 10, students approach today's problem types with familiar strategies. In today's lesson, students make the connection that differences for multiples of 10 such as $40 - 30$ can be viewed as 4 tens – 3 tens.

$$\begin{array}{c} 4 \\ \swarrow \searrow \\ 3 \quad 1 \end{array} \quad \begin{array}{l} 4 - 3 = 1 \\ 3 + 1 = 4 \end{array}$$

Write a number bond for a number between 0 and 10 with a missing part. Students write an addition and a subtraction sentence to find the missing part and solve.

Happy Counting by Tens (2 minutes)

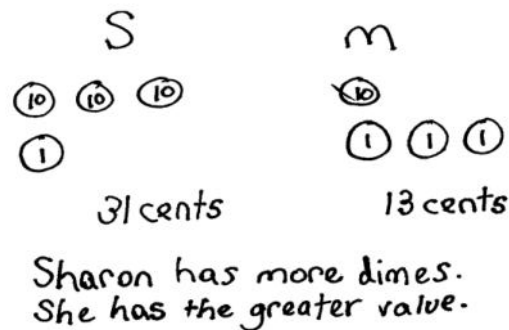
Note: Reviewing Happy Counting by Tens prepares students to recognize the efficiency of counting groups of 10 in today's lesson.

Happy Count by tens the regular way and Say Ten way from 0 to 120 (see Lesson 1). To reinforce place value, try alternating between counting the regular way and the Say Ten way.

Application Problem (5 minutes)

Sharon has 3 dimes and 1 penny. Mia has 1 dime and 3 pennies. Whose amount of money has a greater value?

Note: Money is used in this problem as a way to extend place value concepts and continue to familiarize students with coins and their value.

**Concept Development (33 minutes)**

Materials: (T) Chart paper (S) Personal white board, number bond/number sentence set (Template)

Students sit in the meeting area in a semicircle formation.

- T: (Write $2 + 1$ on the chart. Call up two volunteers.)
Using your magic counting sticks, show us $2 + 1$.
- S: (Student A shows 2 fingers. Student B shows 1 finger.)
- T: How many fingers are there? Say the number sentence.
- S: $2 + 1 = 3$.
- T: (Complete the number sentence on the chart.)



**NOTES ON
MULTIPLE MEANS
OF REPRESENTATION:**

The use of charts in the next few lessons provides students with visual guides to use as resources in the classroom as they learn more about place value. Some students may benefit from having a smaller version of the charts in their personal white boards or folders to refer to as needed.

On their personal white boards, have students write the number sentence, use math drawings to show $2 + 1 = 3$, and make a number bond as the teacher records the information in a chart.

$$2 + 1 = 3$$

$$\text{oo} + \text{o}$$



- T: Let's pretend these circles stand for bananas! Say the number sentence using bananas as the unit.
- S: 2 bananas + 1 banana = 3 bananas.
- T: (Call for an additional volunteer to join the two volunteers.) Show us 2 tens + 1 ten using your magic counting sticks.
- S: (Clasp hands to show 2 tens and 1 ten.)
- T: (Help the first two students stand closer together to show 20.)
- T: (Point to the first two students.) How many tens do we have here?
- S: 2 tens.
- T: (Point to the third student.) How many tens do we have here?
- S: 1 ten.
- T: How many tens are there in all?
- S: 3 tens.
- T: Say the number sentence using the unit *tens*.
(If students struggle, say, "Say the number sentence starting with 2 *tens*.")
- S: 2 tens + 1 ten = 3 tens.
- T: (Record the number sentence on the chart.)

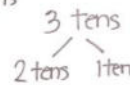
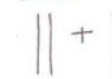


$$2 + 1 = 3$$

$$\text{oo} + \text{o}$$



$$2 \text{ tens} + 1 \text{ ten} = 3 \text{ tens}$$



NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Students demonstrate a true understanding of math concepts when they apply them in a variety of situations. Some students may not be able to make the connection between different number bonds as seen in this lesson. Their path to abstract thinking may be a little longer than others'. Support these students with use of manipulatives and ample practice on their personal white boards.

Have students write the number sentence, use math drawings, and make a number bond. Chart their responses as shown to the right.

Repeat the process, and record the following suggested sequence on the chart: 3 tens + 1 ten, 2 tens + 2 tens, and 1 ten + 3 tens. Progress through the units from ones to bananas to tens (e.g., $3 + 1 = 4 \rightarrow 3 \text{ bananas} + 1 \text{ banana} = 4 \text{ bananas} \rightarrow 3 \text{ tens} + 1 \text{ ten} = 4 \text{ tens}$). Have students write the number sentence, make math drawings, and write the number bond (using the same format from the teacher-generated chart) for each problem. These charts are used later in this lesson.

MP.7

- T: (Point to the first problem on the chart.) Hmm, how can knowing $2 + 1 = 3$ help us with 2 tens + 1 ten? Turn and talk to your partner.
- S: 2 tens + 1 ten = 3 tens is just like $2 + 1 = 3$. \rightarrow It's 2 things and 1 thing make 3 things. 2 circles and 1 circle make 3 circles. 2 bananas and 1 banana make 3 bananas. 2 tens and 1 ten make 3 tens!

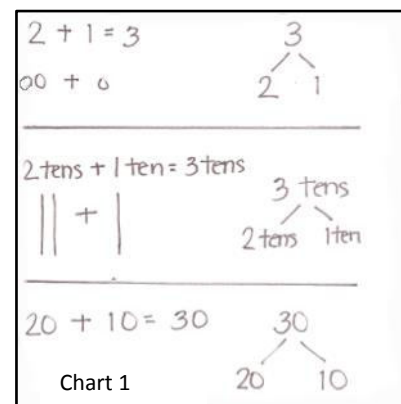


Chart 1

- T: The numbers stay the same. The numbers, 2 and 1 and 3, stay the same, but the *units* change.
- T: (Call up three volunteers to show 2 tens + 1 ten = 3 tens again.) Now, unbundle your magic counting sticks.
- S: (Open hands to show 10 fingers.)
- T: (Point to the first two students.) What did 2 tens become?
- S: 20.
- T: (Point to the third student.) What did 1 ten become?
- S: 10.
- T: What is $20 + 10$? Say the number sentence.
- S: $20 + 10 = 30$.
- T: (Write the number sentence on the chart.) When we say $20 + 10 = 30$, we'll call this the regular way. When we say the place value units, 2 tens plus 1 ten equals 3 tens, we call this the unit way.
- T: Did we change the number of magic counting sticks when we had 2 tens + 1 ten = 3 tens?
- S: No.

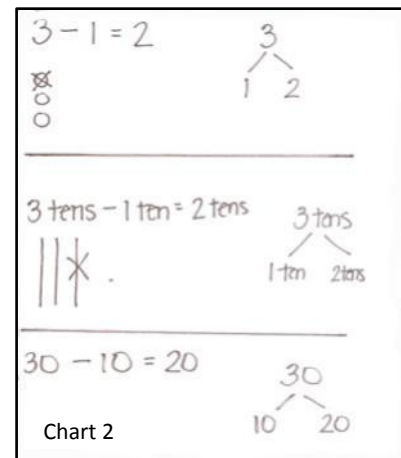


Elicit responses to make a number bond, and chart responses as shown on Chart 1. Have students fill in the last part of the template on their boards.

Repeat the process by revisiting the previous problems written on the charts, and write them again using only numerals. For example, 1 ten + 3 tens = 4 tens is now written as $10 + 30 = 40$.

Next, repeat the process following the suggested sequence for solving subtraction problems as shown on Chart 2: $30 - 10$, $30 - 20$, $40 - 20$, $40 - 40$, and $40 - 0$. Introduce each expression starting with ones and bananas, then tens, and finally as numerals (e.g., $2 - 1 = 1 \rightarrow 2 \text{ bananas} - 1 \text{ banana} = 1 \text{ banana} \rightarrow 2 \text{ tens} - 1 \text{ ten} = 1 \text{ ten} \rightarrow 20 - 10 = 10$).

- T: (Write $4 \text{ tens} - 3 \text{ tens}$ on the chart.) What parts of the number bond can we fill in with these numbers?
- S: 4 tens on top, with 3 tens as one of the parts. (Show the number bond with 1 ten still missing.)
- T: What addition sentence can we write to match this number bond? Remember, we can say “unknown” or “mystery number” for the part we don’t know yet.
- S: 3 tens + “the mystery number” = 4 tens. (Record on the chart.)
- T: What is the missing part?
- S: 1 ten!
- T: (Add the missing part to each section.) Say the subtraction sentence and the related addition sentence we created.
- S: $4 \text{ tens} - 3 \text{ tens} = 1 \text{ ten}$. $3 \text{ tens} + 1 \text{ ten} = 4 \text{ tens}$.
- T: Let’s say it the regular way, too.
- S: $40 - 30 = 10$. $30 + 10 = 40$.



Repeat the process as needed to support students’ understanding.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first.

Student Debrief (10 minutes)

Lesson Objective: Add and subtract tens from a multiple of 10.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. Any combination of the questions below may be used to lead the discussion.

- Look at Problem 3. What simpler problem can help you solve this problem?
- How are Problems 4 and 5 related?
- Look at Problem 10. Share your solution with your partner. Did you solve the problem the same way? (Accept all possible interpretations of this picture as long as the students can support their thinking.)
- Look at Problem 12. Can you find an addition and a subtraction sentence that are related?
- Use the arrow way to represent the adding and subtracting of Problems 12(a), 12(b), and 12(c).
- Explain how you solved the Application Problem.


Exit Ticket (3 minutes)

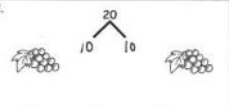
After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work helps with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

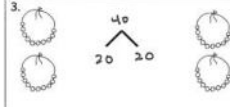
NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 11 Problem Set


Name Maria Date _____

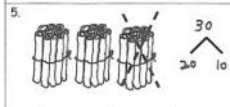
Complete the number bonds and number sentences to match the picture. The first one is done for you.

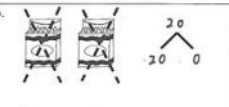
1.  3 tens + 1 ten = 4 tens
30 + 10 = 40

2.  2 tens = 2 tens
10 + 10 = 20

3.  4 tens = 2 tens + 2 tens
40 = 20 + 20

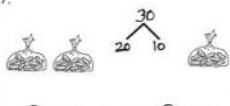
4.  3 tens = 2 tens + 1 ten
30 = 20 + 10

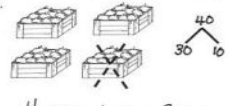
5.  3 tens - 1 ten = 2 tens
30 - 10 = 20

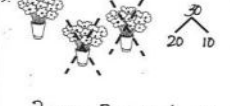
6.  2 tens - 2 tens = 0 tens
20 - 20 = 0

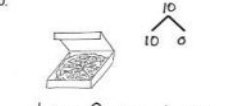
COMMON CORE Lesson 11: Add and subtract tens from a multiple of ten. engage^{ny} 4.CC.9

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 11 Problem Set 1•4

7.  2 tens + 1 ten = 3 tens
20 + 10 = 30

8.  4 tens - 1 ten = 3 tens
40 - 10 = 30

9.  3 tens - 2 tens = 1 ten
30 - 20 = 10

10.  1 ten - 0 tens = 1 ten
10 - 0 = 10

11. Fill in the missing numbers. Match the related addition and subtraction facts.

| | |
|------------------------------------|-------------------------|
| a. 4 tens - 2 tens = <u>2 tens</u> | 2 tens + 1 ten = 3 tens |
| b. 40 - 30 = <u>10</u> | 30 + 10 = 40 |
| c. 30 - 20 = <u>10</u> | 20 + 20 = 40 |

12. Fill in the missing numbers.

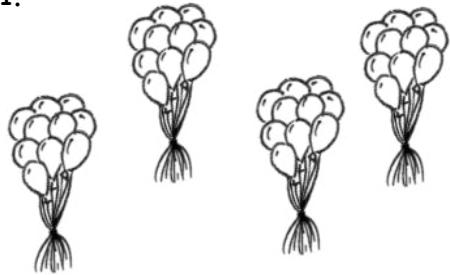

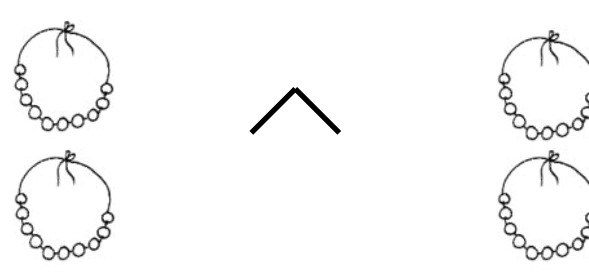

| | | |
|------------------------|------------------------|------------------------|
| a. 20 + 20 = <u>40</u> | b. 30 - 20 = <u>10</u> | c. 10 + <u>30</u> = 40 |
| d. 20 - <u>20</u> = 0 | e. 40 - <u>30</u> = 10 | f. <u>20</u> + 10 = 30 |

EUREKA MATH Lesson 11: Add and subtract tens from a multiple of 10. engage^{ny} 9

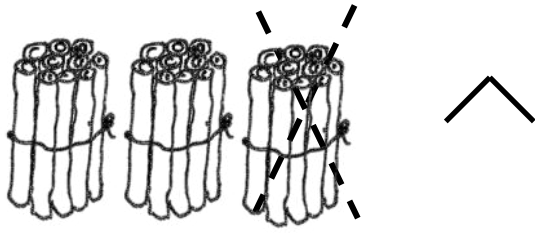
Name _____

Date _____

Complete the number bonds and number sentences to match the picture. The first one is done for you.

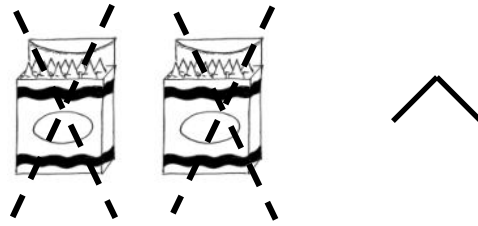
| | |
|---|--|
| <p>1.</p>  <div style="text-align: right;"> $\begin{array}{c} 40 \\ \swarrow \quad \searrow \\ 30 \quad 10 \end{array}$ </div> <p>3 tens + 1 ten = 4 tens 30 + 10 = 40</p> | <p>2.</p> <div style="text-align: center;"> $\begin{array}{c} 20 \\ \swarrow \quad \searrow \end{array}$ </div>  <p>_____ ten + _____ ten = _____ tens</p> <p>_____</p> |
| <p>3.</p>  <div style="text-align: center;"> $\begin{array}{c} \swarrow \quad \searrow \end{array}$ </div> <p>_____ tens = _____ tens + _____ tens</p> <p>_____</p> | <p>4.</p>  <div style="text-align: right;"> $\begin{array}{c} \swarrow \quad \searrow \end{array}$ </div> <p>_____ tens = _____ tens + _____ ten</p> <p>_____</p> |

5.



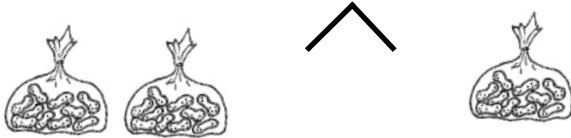
_____ tens - _____ ten = _____ tens

6.



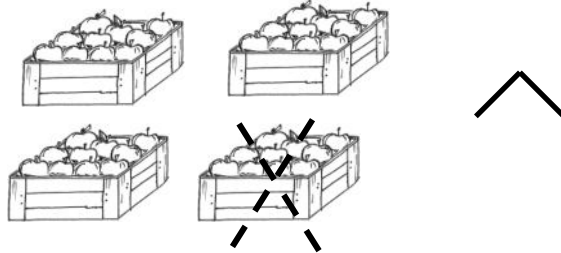
_____ tens - _____ tens = _____ tens

7.



_____ tens + _____ ten = _____ tens

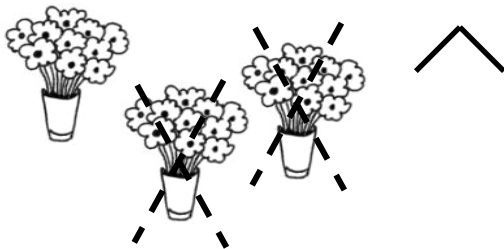
8.



_____ tens - _____ ten = _____ tens

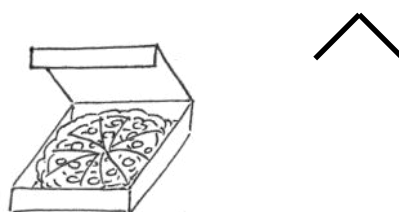
_____ + _____

9.



_____ tens - _____ tens = _____ ten

10.



_____ ten - _____ tens = _____ ten

11. Fill in the missing numbers. Match the related addition and subtraction facts.

a. $4 \text{ tens} - 2 \text{ tens} = \underline{\hspace{2cm}}$ $2 \text{ tens} + 1 \text{ ten} = 3 \text{ tens}$

b. $40 - 30 = \underline{\hspace{2cm}}$ $30 + 10 = 40$

c. $30 - 20 = \underline{\hspace{2cm}}$ $20 + 20 = 40$

12. Fill in the missing numbers.

a. $20 + 20 = \underline{\hspace{2cm}}$

b. $30 - 20 = \underline{\hspace{2cm}}$

c. $10 + \underline{\hspace{2cm}} = 40$

d. $20 - \underline{\hspace{2cm}} = 0$





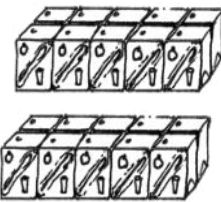










e. $40 - \underline{\hspace{2cm}} = 10$

f. $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 30$

Name _____

Date _____

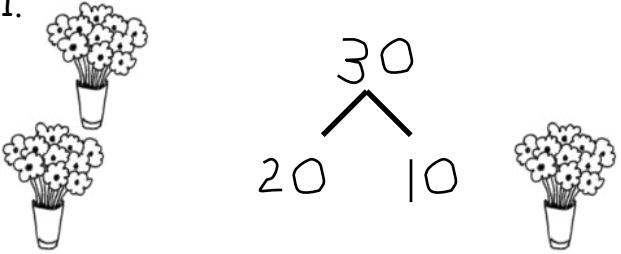
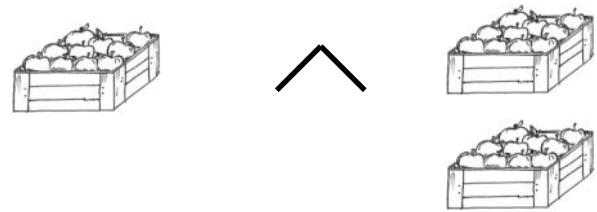
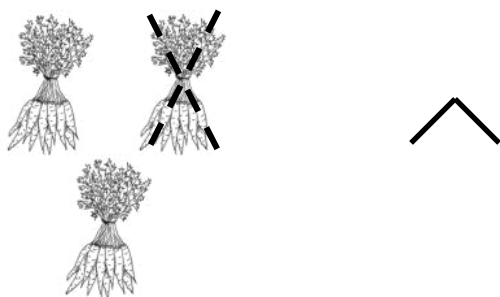
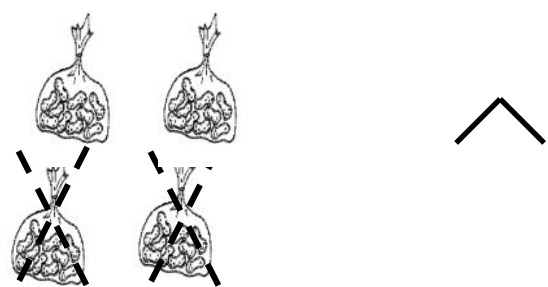
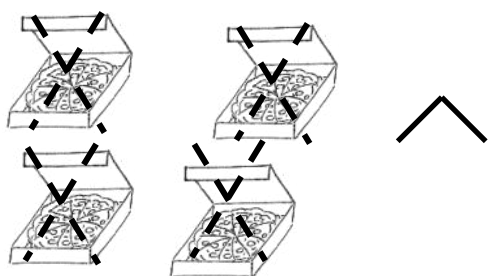
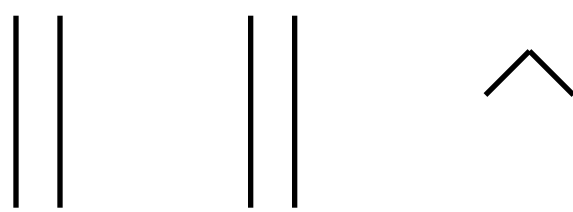
Complete the number bonds and number sentences.

| | |
|---|---|
| <p>1.</p> <div style="text-align: center; margin: 20px 0;">  </div> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: center; margin-top: 20px;">1 ten + 1 ten = _____ tens</p> <p style="text-align: center;">_____ + _____ = _____ 20</p> | <p>2.</p> <div style="text-align: center; margin: 20px 0;">  </div> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: center; margin-top: 20px;">_____ tens = _____ tens + _____ ten</p> <p style="text-align: center;">_____ = _____ + _____</p> |
| <p>3.</p> <div style="text-align: center; margin: 20px 0;">  </div> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p style="text-align: center; margin-top: 20px;">_____ tens - _____ ten = _____ tens</p> <p style="text-align: center;">_____ - _____ = _____</p> | <p>4.</p> <div style="text-align: center; margin: 20px 0;">  </div> <div style="display: flex; justify-content: space-around; align-items: center;">     </div> <p style="text-align: center; margin-top: 20px;">_____ tens - _____ tens = _____ tens</p> <p style="text-align: center;">_____ - _____ = _____</p> |





Name _____

Date _____

Draw a number bond, and complete the number sentences to match the pictures.

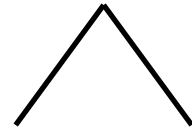
| | |
|--|---|
| <p>1.</p>  <p><u>2</u> tens + <u>1</u> ten = <u>3</u> tens</p> <p><u>20</u> + <u>10</u> = <u>30</u></p> | <p>2.</p>  <p>_____ tens = _____ ten + _____ tens</p> <p>_____</p> |
| <p>3.</p>  <p>_____ tens - _____ ten = _____ tens</p> <p>_____</p> | <p>4.</p>  <p>_____ tens - _____ tens = _____ tens</p> <p>_____</p> |
| <p>5.</p>  <p>_____ tens - _____ tens = _____ tens</p> <p>_____</p> | <p>6.</p>  <p>_____ tens + _____ tens = _____ tens</p> <p>_____</p> |

Draw quick tens and a number bond to help you solve the number sentences.

| | |
|---|--|
| 7.  $10 + 20 = \underline{\hspace{2cm}}$ | 8.  $30 - 10 = \underline{\hspace{2cm}}$ |
| 9.  $20 - 10 = \underline{\hspace{2cm}}$ | 10.  $30 + 10 = \underline{\hspace{2cm}}$ |

Add or subtract.

- | | | |
|----------------------------|-----------------------------|---------------------|
| 11. 2 tens + 1 ten = _____ | 12. 20 + 20 = _____ | 13. 40 - 10 = _____ |
| 14. _____ = 20 + 10 | 15. 3 tens - 2 tens = _____ | 16. 20 - 10 = _____ |
| 17. 10 - 10 = _____ | 18. _____ = 30 + 10 | 19. 40 - 30 = _____ |



number bond/number sentence set