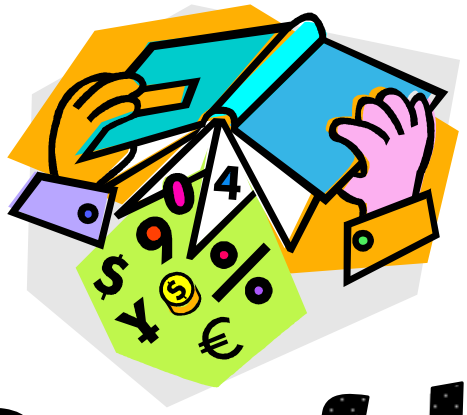
# Mathematics:



# "A Story of Units"

# Parent Handbook

## Grade 2

## Module 1

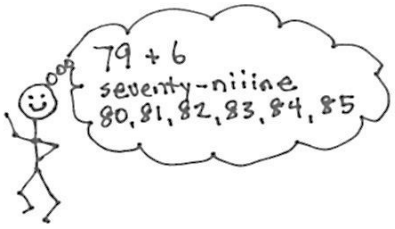
Grade 2 • Module 1

# Sums and Differences to 20

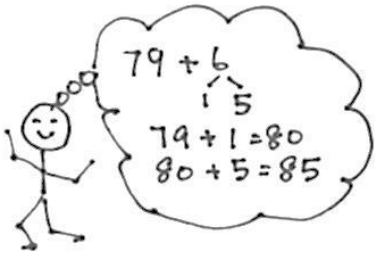
## OVERVIEW

Module 1 sets the foundation for students to master the sums and differences to 20 and to subsequently apply these skills to fluently add one-digit to two-digit numbers at least through 100 using place value understandings, properties of operations and the relationship between addition and subtraction. In Grade 1, students worked extensively with numbers to 10 and they developed Level 2 and Level 3 mental strategies to add and subtract within 20 and 100.

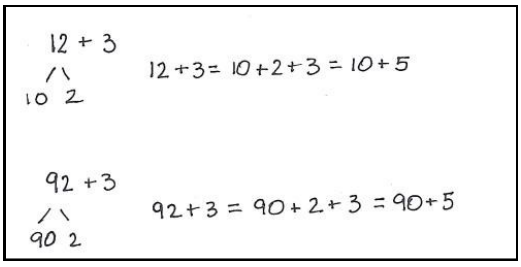
Level 2: Count on

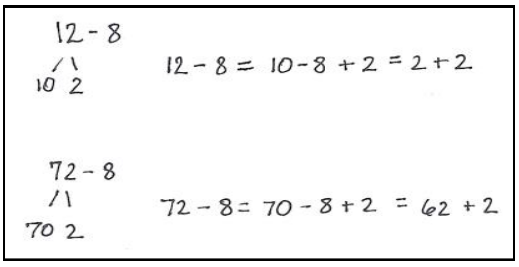



Level 3: Decompose an addend to compose ten




For example, to solve 12 + 3 students might make an equivalent but easier problem by decomposing 12 as 10 + 2 and composing 2 with 3 to make 5. Students can use this knowledge to solve related problems such as 92 + 3. They also apply their skill using smaller numbers to subtract problems with larger numbers: 12 – 8 = 10 – 8 + 2 = 2 + 2, just as 72 – 8 = 70 – 8 + 2 = 62 + 2.



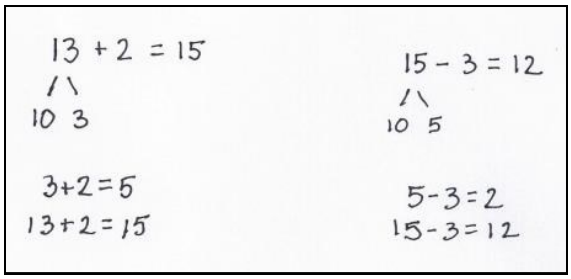




Daily fluency activities provide sustained practice to help students attain fluency within 20. This fluency is essential to the work of later modules and future grade levels, where students must fluently recompose place value units to work adeptly with the four operations. Activities such as Say Ten counting and Take from 10, and the use of ten-frame cards and Hide Zero cards, solidify student fluency. Because the amount of practice required by each student to achieve mastery will vary, a motivating, differentiated fluency program needs to be established in these first weeks to set the tone for the rest of the year.

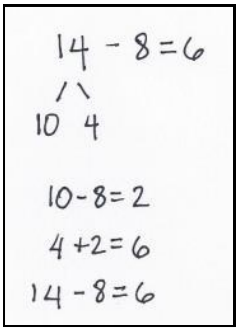
Throughout the module, students will represent and solve one-step word problems through the daily Application Problem. Application problems can precede a lesson to act as the lead-in to a concept, allowing students to discover through problem-solving the logic and usefulness of a strategy before that strategy is reviewed. Or, they can follow the concept development so that students connect and apply their learning to real-world situations. This latter structure can also serve as a bridge between teacher-directed work and students solving problems independently on activity worksheets and at home. In either case, problem-solving begins as a guided activity, with the goal being to move students to independent problem-solving, wherein they reason through the relationships of the problem and choose an appropriate strategy to solve. In Module 1, application problems follow concept development.

Topic A reactivates students' Kindergarten and Grade 1 learning, as they practice prerequisite skills for Level 3 decomposition and composition methods: partners to 10 and decompositions for all numbers within 101. Students move briskly from concrete to pictorial to abstract as they remember their "make ten" facts. They use ten-frame cards to visualize 10, and they write the number bonds of 10 from memory. They use those facts to see relationships in larger numbers (e.g., 28 needs how many to make 30.) The number bond is also used to represent related facts within 10.

Topic B also moves from concrete to pictorial to abstract, as students use decomposing strategies to add and subtract within 20. By the end of Grade 1, Module 2, students learned to form ten as a unit. Hence, the phrase *make ten* now transitions to *make a ten.* Students use the ten-structure to reason about making a ten to add to the teens, and they use this pattern and math drawings to solve related problem sets (e.g., 9 + 4, 9 + 5, 9 + 6). Students reason about the relationship between problems such as 19 + 5 and 20 + 4 to 9 + 5 and 10 + 4. They use place value understanding to add and subtract within 20 by adding to and subtracting from the ones. The topic ends with a lesson in which students subtract from 10. The goal in making a 10 and taking from 10 is for students to master mental math.

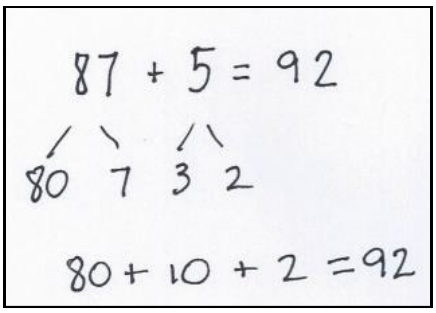



Add and subtract ones

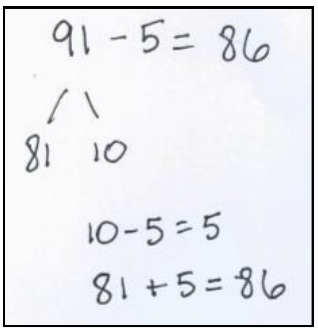



Take from 10

Topic C calls on students to review strategies to add and subtract within 100 to set the foundation for Grade 2's work towards mastery of fluency with the same set of problems. They use basic facts and place value understanding to add and subtract within multiples of 10 without crossing the multiple (e.g., 7 – 5 = 2, so 47 - 5 = 42.) This segues into the use of basic facts and properties of addition to cross multiples of 10 (e.g., 26 + 9 = 20 + 6 + 4 + 5). In the final lesson, students decompose to make a ten, and then to subtract from numbers that have both tens and ones.



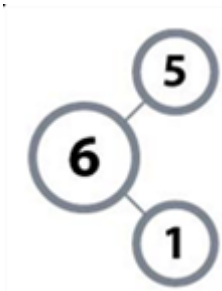

Add basic facts to cross multiples of ten.




Decompose and subtract from the 10.

# Terminology

## Familiar Terms and Symbols




- Make ten and subtract from ten (e.g., 8 + 3 = 8+ 2 + 1 and 15 – 7 = 10 – 7 + 5 = 3 + 5)
- Ten plus (e.g., 10 + 3 = 13, 30 + 5 = 35, 70 + 8 = 78)
- Number bond (e.g., 5 + 1 = 6, 1 + 5 = 6, 6 – 1 = 5, 6 – 5 = 1)
- Say Ten counting (e.g., 11 is "1 ten 1," 12 is "1 ten 2," twenty is "2 tens," 27 is "2 tens 7," 35 is "3 tens 5," 100 is "1 hundred," 146 is "1 hundred 4 tens 6")

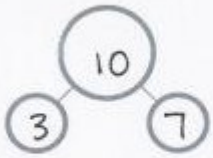
| Regular | Say Ten |
|---|---|
| fifty-one | 5 tens 1 |
| sixty-seven | 6 tens 7 |
| seventy-five | 7 tens 5 |
| eighty-four | 8 tens 4 |
| ninety-five | 9 tens 5 |

## Lesson 1

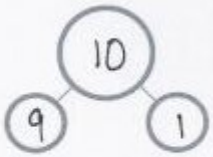
Objective: Make number bonds of ten.

Add or subtract. Complete the number bond for each set.

3 + 7 = 10
7 + 3 = 10
10 - 7 = 3
10 - 3 = 7




9 + 1 = 10
1 + 9 = 10
10 - 1 = 9
10 - 9 = 1




Jim had $6 in the bank. He found some money on a park bench and put it the bank. He now has $10 in the bank. How much money did he find?

$6 + \square = 10$

$4

Natasha was given some money for her birthday. She spent $7 on a bow and $3 on a hair clip. If she used all of her money, how much money was Natasha given? Solve using words, math drawings, or numbers.

7 + 3 = 10

Natasha was given $10.

## Lesson 2

Objective: Make number bonds through ten with a subtraction focus and apply to one-step word problems.

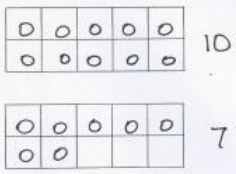
Complete the number bonds


Find the unknown numbers that make the number sentences true.

9 - 5 = 4
3 + 5 = 8
8 - 4 = 4
18 = 8 + 10
9 - 5 = 4

8 - 5 = 3
3 + 4 = 7
6 - 3 = 3
17 = 7 + 10
9 - 6 = 3

Your older sister says, "3 + 10 is easy". You can hear the answer when you count the Say Ten way. Use the ten-frame cards to show why this strategy works for 10 + 7 = 17.




> 17

Maggie had a bag of marbles. There were 5 yellow marbles, 6 white marbles and 4 blue marbles. How many marbles were there in all? Show your thinking using words, math drawings, or a number sentence.

5 + 6 + 4 = 15
10
10 + 5 = 15

## Lesson 3

Objective: Make a ten to add within 20.

3. Margaret went to camp for 8 hours on Saturday and 4 hours on Sunday. Sandra went to camp for 6 hours on Saturday and 5 hours on Sunday.

a. How many hours did Margaret spend at camp?

$8 + 4 = 12$

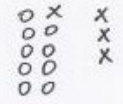
2 2

b. How many hours did Sandra spend at camp?

$6 + 5 = 11$

1 5

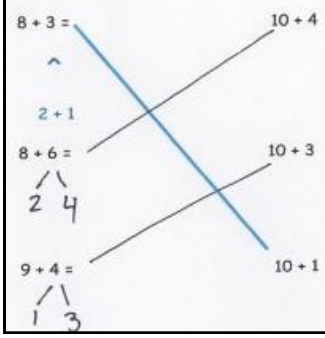
4. Draw to explain how to add 9 and 4 by making ten.



$9 + 4 = 10 + 3$

$9 + 1 + 3$ (13)

Solve the facts by recording make ten solutions with number bonds. Then draw a line connecting each one with the number sentence showing how you added the remaining ones to ten. The first one is done for you.




## Lesson 4

**Objective**: Make a ten to add and subtract within 20.

Autumn made some cookies. She ate 4 of them and had 16 left. How many did she make?

$16 + 4 = 20$

Mrs. Parker read 12 books last year. So far this year she has read three books. How many books has she read altogether?

$12 + 3 = 15$

Andy had $48. He spent $5 on a book and gave $3 to his brother. How much money did he have left?

$5 + 3 = 8$

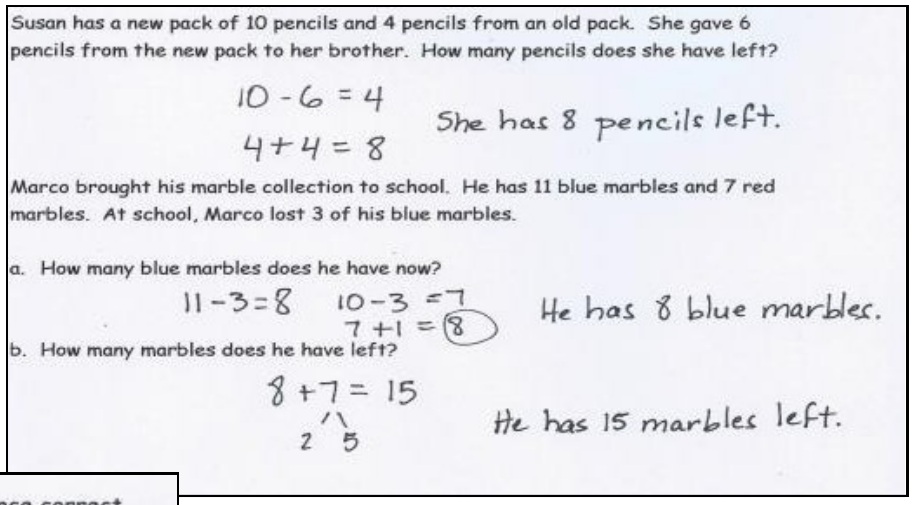
$48 - 8 = 40$

Use basic facts to help you solve with mental math.

1. $13 + 2 = 15$ (5)
2. $11 + 4 = 15$ (5)
3. $14 + 2 = 16$ (6)
4. $13 + 6 = 19$ (9)
5. $16 = 12 + 4$ (6)
6. $14 + 3 = 17$ (7)

## Lesson 5

Objective: Decompose to subtract from a ten when subtracting within 20 and apply to one-step word problems.



Susan has a new pack of 10 pencils and 4 pencils from an old pack. She gave 6 pencils from the new pack to her brother. How many pencils does she have left?

10 - 6 = 4
4 + 4 = 8

She has 8 pencils left.

Marco brought his marble collection to school. He has 11 blue marbles and 7 red marbles. At school, Marco lost 3 of his blue marbles.

a. How many blue marbles does he have now?

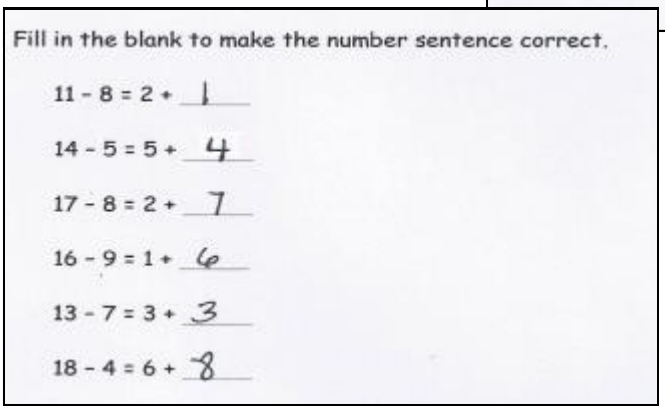
11 - 3 = 8  10 - 3 = 7
7 + 1 = (8)

He has 8 blue marbles.

b. How many marbles does he have left?

8 + 7 = 15
2  5

He has 15 marbles left.

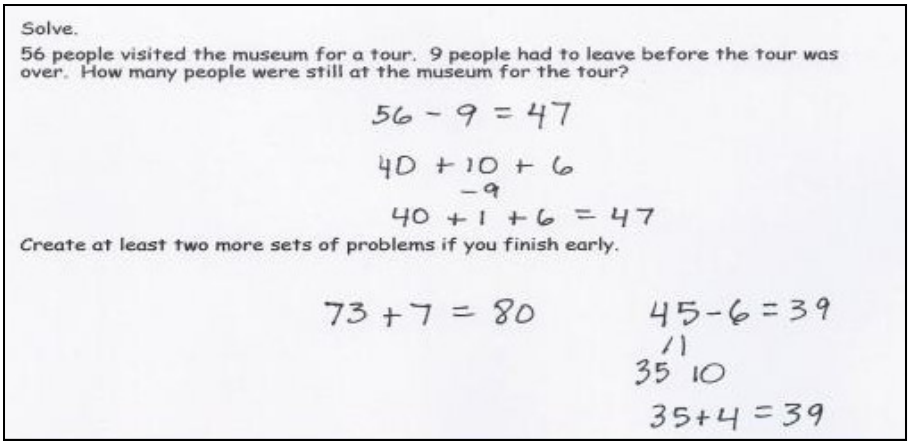


Fill in the blank to make the number sentence correct.

11 - 8 = 2 + 1
14 - 5 = 5 + 4
17 - 8 = 2 + 7
16 - 9 = 1 + 6
13 - 7 = 3 + 3
18 - 4 = 6 + 8

## Lesson 6

Objective: Add and subtract within multiples of ten based on understanding place value and basic facts.



Solve.

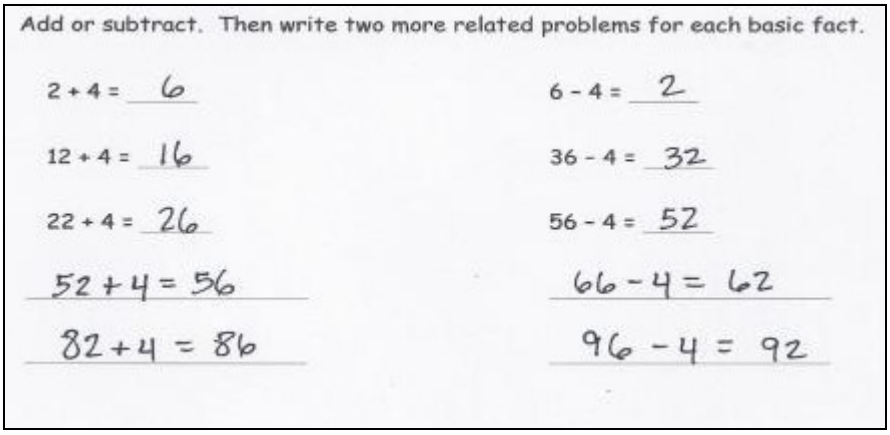
56 people visited the museum for a tour. 9 people had to leave before the tour was over. How many people were still at the museum for the tour?

56 - 9 = 47
40 + 10 + 6
-9
40 + 1 + 6 = 47

Create at least two more sets of problems if you finish early.

73 + 7 = 80

45 - 6 = 39
11
35 10
35 + 4 = 39



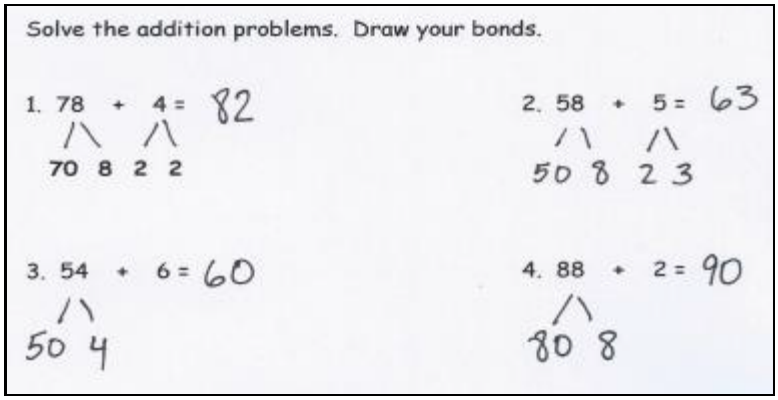
Add or subtract. Then write two more related problems for each basic fact.

2 + 4 = 6
12 + 4 = 16
22 + 4 = 26
52 + 4 = 56
82 + 4 = 86

6 - 4 = 2
36 - 4 = 32
56 - 4 = 52
66 - 4 = 62
96 - 4 = 92

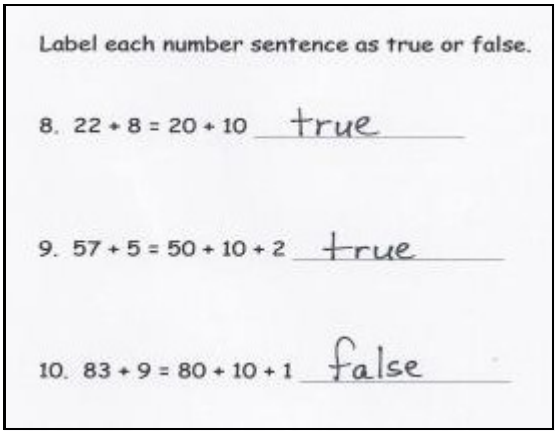
## Lesson 7

Objective: Add within 100 using properties of addition to make a ten.



Solve the addition problems. Draw your bonds.

1. 78 + 4 = 82 (70, 8, 2, 2)
2. 58 + 5 = 63 (50, 8, 2, 3)
3. 54 + 6 = 60 (50, 4)
4. 88 + 2 = 90 (80, 8)

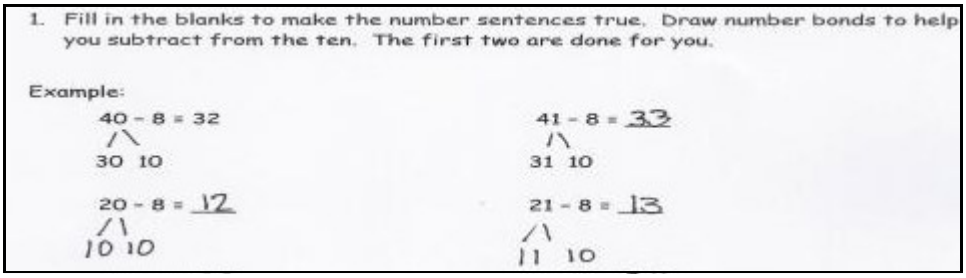


Label each number sentence as true or false.

8. 22 + 8 = 20 + 10 true
9. 57 + 5 = 50 + 10 + 2 true
10. 83 + 9 = 80 + 10 + 1 false

## Lesson 8

Objective: Decompose to subtract from a ten when subtracting within 100 and apply to one-step word problems.



1. Fill in the blanks to make the number sentences true. Draw number bonds to help you subtract from the ten. The first two are done for you.

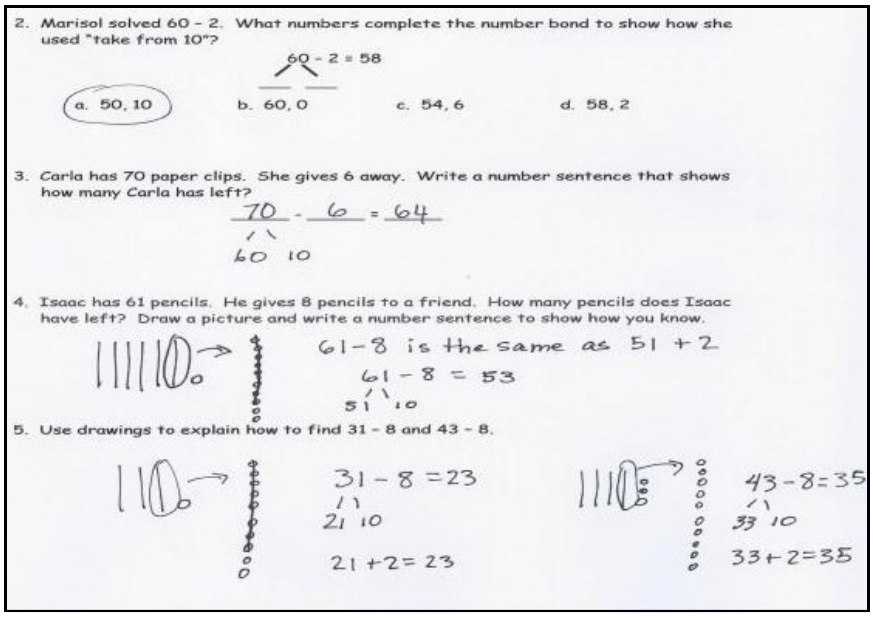
Example:

40 - 8 = 32 (30, 10)

41 - 8 = 33 (31, 10)

20 - 8 = 12 (10, 10)

21 - 8 = 13 (11, 10)



2. Marisol solved 60 - 2. What numbers complete the number bond to show how she used "take from 10"?

60 - 2 = 58 (__, __)

a. 50, 10 b. 60, 0 c. 54, 6 d. 58, 2

3. Carla has 70 paper clips. She gives 6 away. Write a number sentence that shows how many Carla has left?

70 - 6 = 64 (60, 10)

4. Isaac has 61 pencils. He gives 8 pencils to a friend. How many pencils does Isaac have left? Draw a picture and write a number sentence to show how you know.



61 - 8 is the same as 51 + 2

61 - 8 = 53 (51, 10)

5. Use drawings to explain how to find 31 - 8 and 43 - 8.



31 - 8 = 23 (21, 10)

21 + 2 = 23



43 - 8 = 35 (33, 10)

33 + 2 = 35