

THE BOOK OF

FACTS

SUBTRACTION

SAMPLE ACTIVITY

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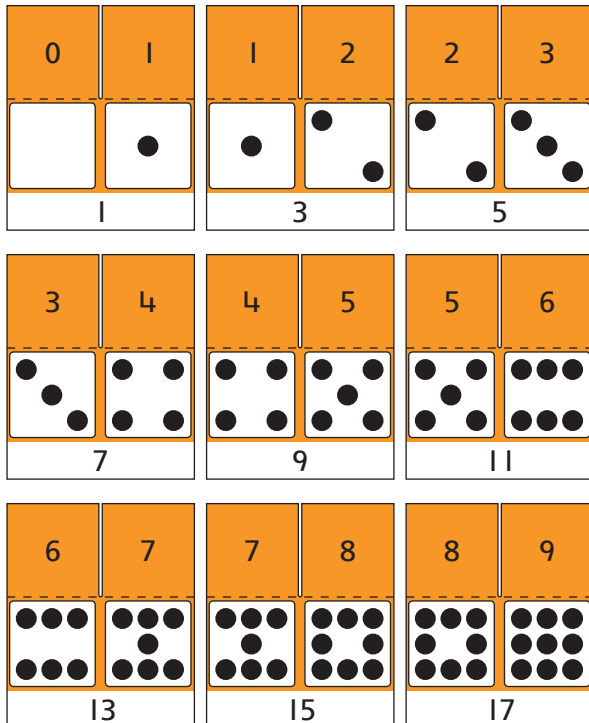
ORIGO[®]
EDUCATION

Double Plus 1

Introduce

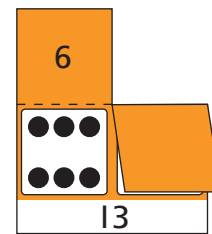
1 Read some of the double-plus-1 stories from Blackline Master 24 to the class. For each story, ask the students to describe which numbers are known, which number is unknown and how they can figure out the value of the unknown. Encourage the students to explain their thinking and then write a matching number fact. Afterward, instruct the students to write two or three stories. They can then have a partner solve their stories.

2 Select or make the flip cards shown below. Some of the cards will have been used to teach the count-on subtraction facts.



See: *Think-Addition Subtraction Strategy Cards*

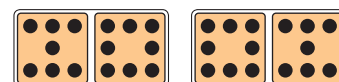
Hold the 6 + 7 card so that the flap showing 7 covers the seven dots. Display the card to the students and ask, **What do we know when we look at this card?** (There are thirteen dots in total, but only six are visible.)



Ask, **How can we figure out how many dots are covered?** The students' suggestions may include, "I know that double six is twelve. One more makes thirteen, so the missing part must be seven," or, "I know that six add seven is thirteen, so seven dots must be covered." Repeat the activity with the remaining cards. Use each card twice, folding a different flap each time.

3 Write $5 + 6 = 11$ on the board. Show a matching domino and say the number on each side. Ask, **What is the turnaround fact? How can I show the domino for that fact?** Write other double-plus-1 addition facts from $0 + 1 = 1$ to $8 + 9 = 17$ on the board. Instruct the students to work in pairs to find the matching domino for each fact. Discuss the results with the class.

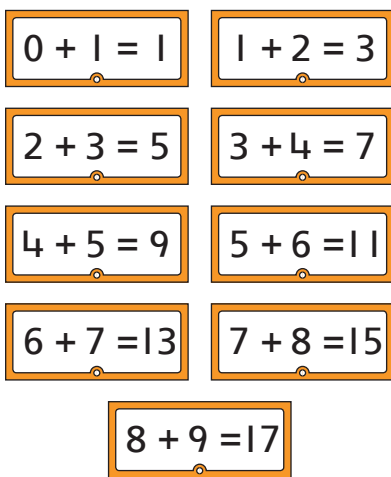
Afterward, write $15 - 8 = \underline{\quad}$ on the board. Ask, **What domino can we use to figure out the missing part? How do you know?** Ask a volunteer to identify either of the dominoes shown below. Repeat with other double-plus-1 facts.





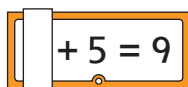
Reinforce

- 1 Make or select the addition flash cards shown below. Some of the cards will have been used previously to teach the count-on subtraction facts. Make a paper sleeve that can completely cover any symbol or numeral on the cards.



See: *Missing-Addend Subtraction Cards*

Select the $4 + 5 = 9$ card and position the sleeve over the first addend as shown below. Display the card and ask, **What number is covered? How do you know?** You may find that some students identify the matching double-plus-1 addition fact, while others double the greater addend then subtract one. Either method is acceptable. Repeat with other cards as time allows, alternating between covering the first and second addends.

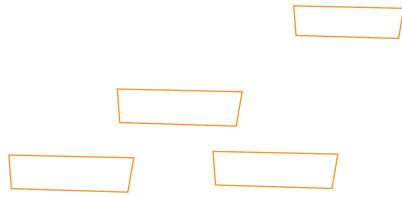


- 2 Ask the students to suggest addition and subtraction number sentences that involve a total of 11 as shown below and write them on the board. Ask, **What patterns do you see? What number sentences are near the middle of the list?** Loop the four number sentences in the middle of the lists as shown. Ask, **What do you notice about the numbers in the middle of the lists?** Encourage the students to describe how 5 and 6 are close to each other.

$0 + 11 = 11$	$11 - 0 = 11$
$1 + 10 = 11$	$11 - 1 = 10$
$2 + 9 = 11$	$11 - 2 = 9$
$3 + 8 = 11$	$11 - 3 = 8$
$4 + 7 = 11$	$11 - 4 = 7$
$5 + 6 = 11$	$11 - 5 = 6$
$6 + 5 = 11$	$11 - 6 = 5$
$7 + 4 = 11$	$11 - 7 = 4$
$8 + 3 = 11$	$11 - 8 = 3$
$9 + 2 = 11$	$11 - 9 = 2$
$10 + 1 = 11$	$11 - 10 = 1$
$11 + 0 = 11$	$11 - 11 = 0$

Write the first row of another two lists that involves a total of 13. Ask, **Which number sentences will be near the middle of these lists? How do you know?** After the students have explained their thinking, repeat the discussion for lists that involve a total of 15, 17, and 19.

- 3 Give each student a copy of Blackline Master 28. Read the instruction and then direct them to complete the page individually.



Practice

- 1 Select or make the double-sided flash cards shown below (the partner fact is on the back of each card). The cards should be made of exactly the same paper as the other flash cards used previously. Some of the count-on cards can be reused. Show one card and ask a student to say the missing number. Allow approximately three seconds for the student to respond. Repeat several times with other students and cards (including the partner facts).

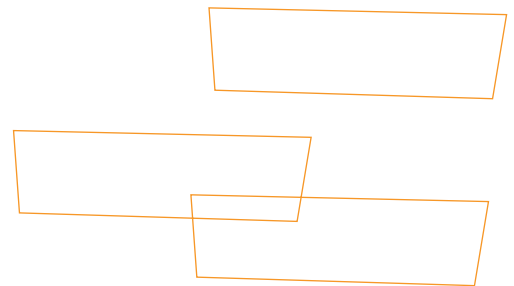
Front	Back
$1 - 0 = \underline{\quad}$	$1 - 1 = \underline{\quad}$
$3 - 1 = \underline{\quad}$	$3 - 2 = \underline{\quad}$
$5 - 2 = \underline{\quad}$	$5 - 3 = \underline{\quad}$
$7 - 3 = \underline{\quad}$	$7 - 4 = \underline{\quad}$
$9 - 4 = \underline{\quad}$	$9 - 5 = \underline{\quad}$
$11 - 5 = \underline{\quad}$	$11 - 6 = \underline{\quad}$
$13 - 6 = \underline{\quad}$	$13 - 7 = \underline{\quad}$
$15 - 7 = \underline{\quad}$	$15 - 8 = \underline{\quad}$
$17 - 8 = \underline{\quad}$	$17 - 9 = \underline{\quad}$

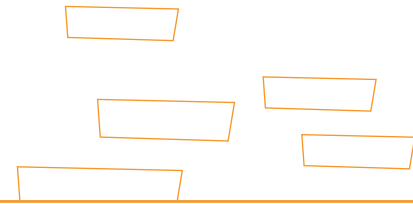
See: *Subtraction Flash Cards*

- 2 This is a game for two players. Give each student a copy of Blackline Master 29. Each student will need a spinner from Blackline Master 5, and a pencil and straightened paper clip to use with the spinner. Instruct them to label the spinner from 0 to 9 inclusive. The 6 and 9 should be underlined to avoid confusion.

To play the game:

- The first player spins the paper clip.
 - The number on the spinner is an OUT number for one of the function machines. The player writes the number in a correct space on one of their three function machines.
 - The other player has a turn.
 - The first player to write fifteen correct OUT numbers wins.
- 3 Give each student a copy of Blackline Master 30. Read the instruction with the students before directing them to complete the page individually.
 - 4 Distribute the students' record sheets used in *Practice Activity 5* on page 34 (Blackline Master 27). Direct them to fold the sheet so that they can see only the *Double-Plus-1* section. This assessment task should take no more than about $1\frac{1}{2}$ minutes for the students to complete. A longer period of time may indicate that recall of the facts is not automatic. Collect the sheets afterward and record the results for each student on Blackline Masters 1 and 2. See page 5 of the *Introduction* for instructions.





Extend

1 Write $40 - 20 = \underline{\quad}$ on the board. Ask, **What is the missing part? How do you know?** Write 20 then say, **Add one to the total. How will you change the other numbers so that the sentence is still true?** Encourage the students to describe the possible changes. For example:

- Changing the subtrahend ($41 - 21 = 20$)
- Changing the difference ($41 - 20 = 21$)

Repeat the discussion for other number sentences such as $50 - 25 = \underline{\quad}$ or $60 - 30 = \underline{\quad}$.

Fact File

Both addition and subtraction have a part-part-total structure. In subtraction, the values of the total (*minuend*) and one part (*subtrahend*) are known. The value of a second part (*difference*) is unknown.

$$12 - 7 = 5$$

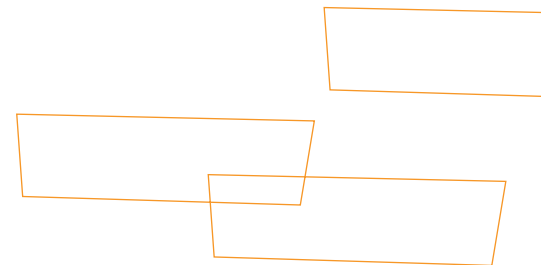
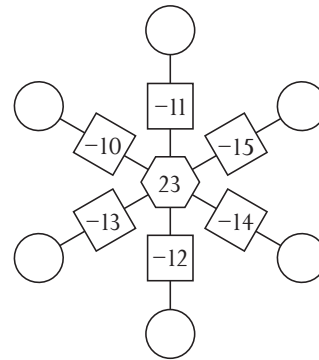
minuend subtrahend difference

2 Write $51 - 25 = \underline{\quad}$ on the board. Ask, **What is the missing part? How can you figure it out?** Discuss a variety of strategies. The students can use base-ten blocks to demonstrate their thinking on the overhead projector. Their suggestions may include:

- “Double twenty-five is fifty. Then add a one. That means the answer must be twenty-six.”
- “Take off one. Then take half of fifty. That is twenty-five. Put back one to get twenty-six.”
- “Take away half of the fifty. Twenty-five plus one is twenty-six.”

Repeat the discussion for other combinations, such as $39 - 20 = \underline{\quad}$, $49 - 25 = \underline{\quad}$, and $81 - 40 = \underline{\quad}$.

3 Make an overhead transparency of Blackline Master 31, or copy and laminate it. Write numerals in the diagram as shown below. Say, **The numbers shown on each “spoke” make a subtraction number sentence. Which “spoke” can you complete? How can you use the number sentences you know to figure out those you don’t know?** Invite volunteers to explain how they can figure out all the missing values. Repeat with other totals from 20 to 30 inclusive.



Facts Grid

Name: _____

Find the total in the left-hand column. Then find the known part in the top row.

Known Fact

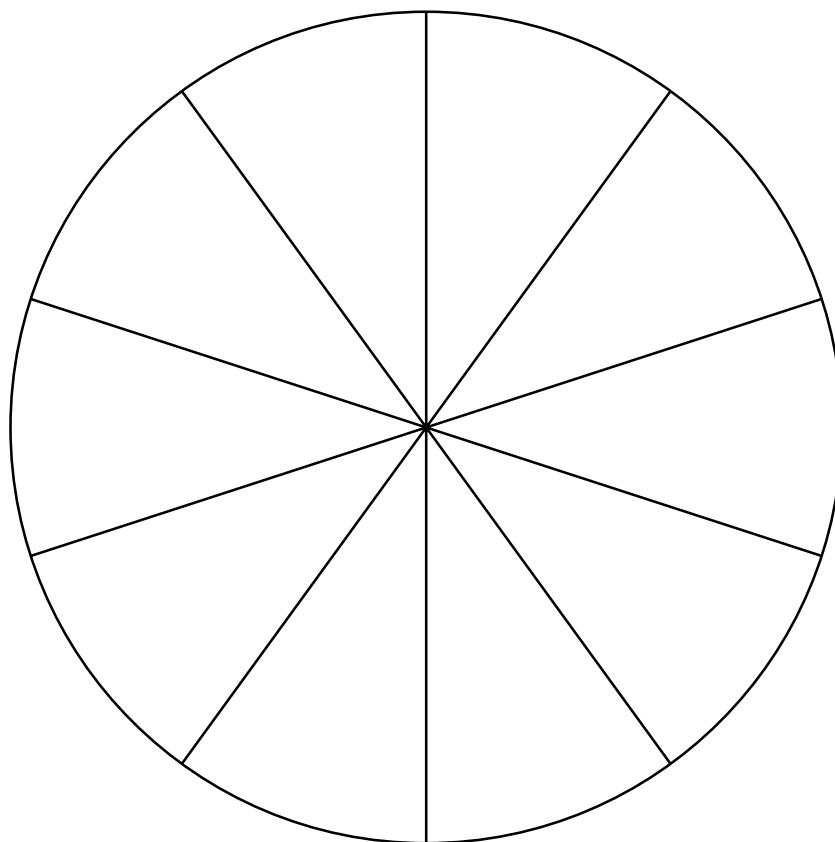
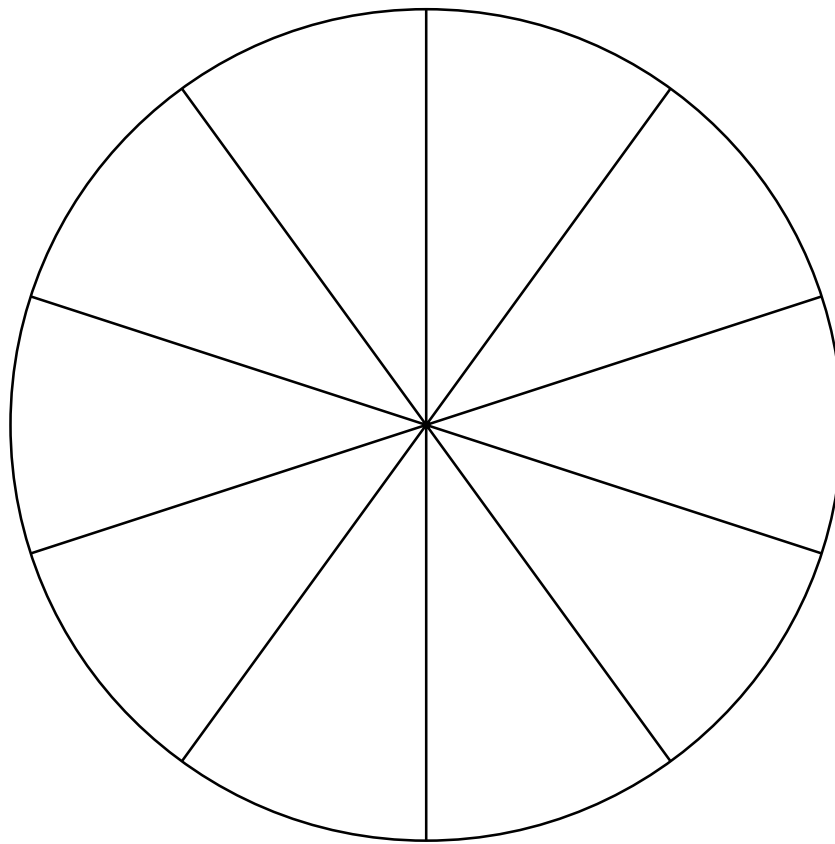
	0	1	2	3	4	5	6	7	8	9
0	0									
1	1	0								
2	2	1	0							
3	3	2	1	0						
4	4	3	2	1	0					
5	5	4	3	2	1	0				
6	6	5	4	3	2	1	0			
7	7	6	5	4	3	2	1	0		
8	8	7	6	5	4	3	2	1	0	
9	9	8	7	6	5	4	3	2	1	0
10		9	8	7	6	5	4	3	2	1
11			9	8	7	6	5	4	3	2
12				9	8	7	6	5	4	3
13					9	8	7	6	5	4
14						9	8	7	6	5
15							9	8	7	6
16								9	8	7
17									9	8
18										9

Total

Student Tracking Chart

	Student Names	Count on 1	Count on 2	Count on 3	Count on 0	Double	Double plus 1	Double plus 2	Bridge to 10
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

Blank Spinners



Double

Julia had 10 lollipops. She gave 5 to Lauren.
How many lollipops does Julia have left?

There were 3 spoons on the table. I put some more on the table. There are now 6 spoons on the table. How many extra spoons did I put on the table?

Katie has 4 boxes. She needs 8 boxes in total.
How many more boxes does she need?

There were 12 eggs in the carton and 6 of them were used to make an omelette. How many eggs are still in the carton?

There were 7 ducks in a pond. More ducks joined them. There are now 14 ducks in the pond. How many extra ducks swam into the pond?

David has 16 jelly beans. Brett has 8 jelly beans.
How many more jelly beans does David have?

Double plus 2

There were 12 apples in the basket. Joshua and his friends ate 5 of them. How many apples are in the basket now?

James had 4 jelly beans. His sister gave him some more. Now he has 10 jelly beans. How many did his sister give him?

Emily can have 10 friends at her party. She has invited 4 friends already. How many more friends can she invite?

Lucy blew 16 bubbles and 7 of them popped straight away. How many are left?

There were 8 balls in the box then more balls were added so that there are 14 balls in total. How many extra balls were put in the box?

I have 7 coins. Nicola has 12 coins.
How many more coins does Nicola have?

Double plus 1

Ella has 11 coins in her pocket. She spends 5 of them. How many coins does she have left?

Ashley's cat had 7 kittens. There are 3 male kittens. How many kittens were females?

Our chickens laid 9 eggs today, but only 4 eggs yesterday. How many more eggs did they lay today than yesterday?

Daniel had 17 marbles. He lost 8 of them. How many does he have left?

There are 8 birds sitting on the fence. More birds sit beside them. There are now 15 birds. How many extra birds sat on the fence?

Cameron has 6 toy cars. He wants to own 13 in total. How many more cars does he need?

Bridge to 10

Matthew had 11 balloons and 4 of them floated away. How many balloons did he have left?

Jacob found 8 shells on the beach. Then he found some more so that he had 12 in total. How many extra shells did he find?

Kayla has 11 CDs. Her friend has 7 CDs. How many more CDs does Kayla have than her friend?

There were 14 people on a bus and then 9 of them got off. How many people are left on the bus?

There were 8 books on the shelf. Natasha put some more beside them. There are now 13 books. How many books did Natasha put on the shelf?

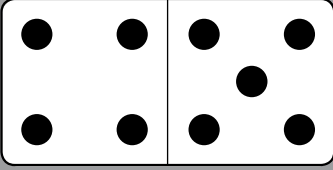
There are 15 frogs in the pond and 6 frogs sitting beside the pond. How many more frogs are in the pond than beside the pond?

More Fact Families

Name: _____

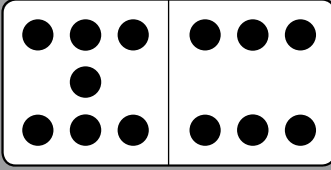
1. Write the fact family for each domino.

a.



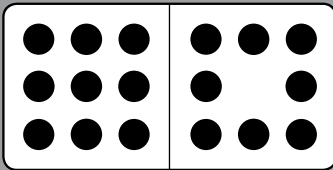
$4 + 5 = \underline{\quad}$	$5 + 4 = \underline{\quad}$
$9 - 4 = \underline{\quad}$	$9 - 5 = \underline{\quad}$

b.



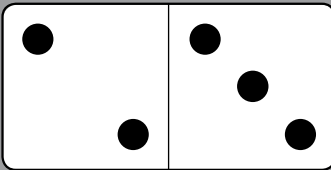
$\underline{\quad} + \underline{\quad} = \underline{\quad}$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$
$\underline{\quad} - \underline{\quad} = \underline{\quad}$	$\underline{\quad} - \underline{\quad} = \underline{\quad}$

c.



$\underline{\quad} + \underline{\quad} = \underline{\quad}$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$
$\underline{\quad} - \underline{\quad} = \underline{\quad}$	$\underline{\quad} - \underline{\quad} = \underline{\quad}$

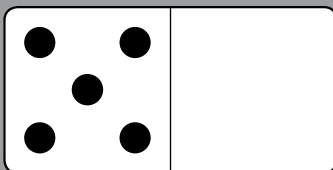
d.



$\underline{\quad} + \underline{\quad} = \underline{\quad}$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$
$\underline{\quad} - \underline{\quad} = \underline{\quad}$	$\underline{\quad} - \underline{\quad} = \underline{\quad}$

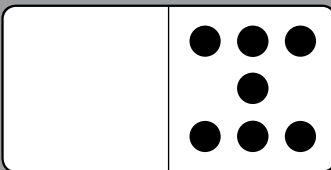
2. Complete these number facts and domino pictures.

a.



$5 + \underline{\quad} = 11$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$
$\underline{\quad} - \underline{\quad} = \underline{\quad}$	$\underline{\quad} - \underline{\quad} = \underline{\quad}$

b.



$\underline{\quad} + \underline{\quad} = \underline{\quad}$	$\underline{\quad} + 7 = 15$
$\underline{\quad} - \underline{\quad} = \underline{\quad}$	$\underline{\quad} - \underline{\quad} = \underline{\quad}$

11	9	6	10	8	5	7	IN
							OUT

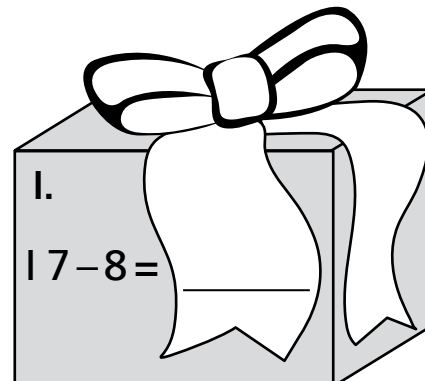
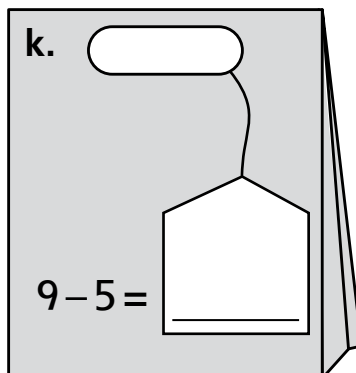
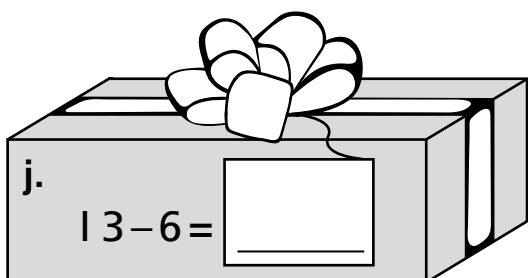
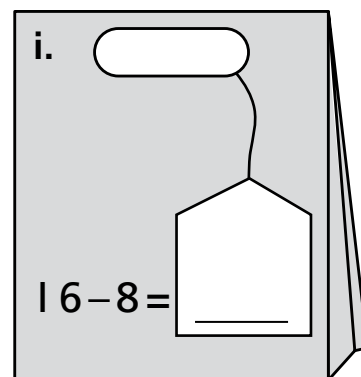
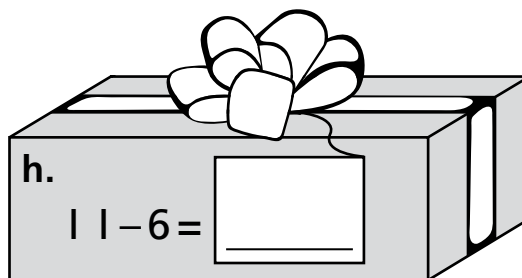
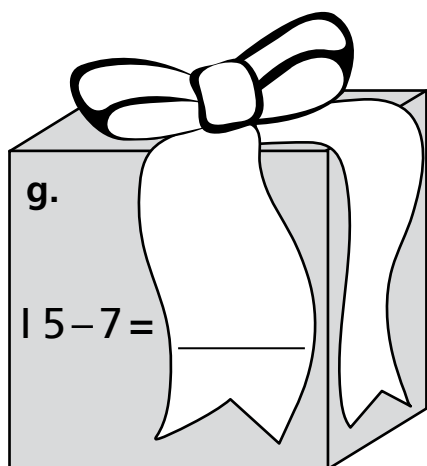
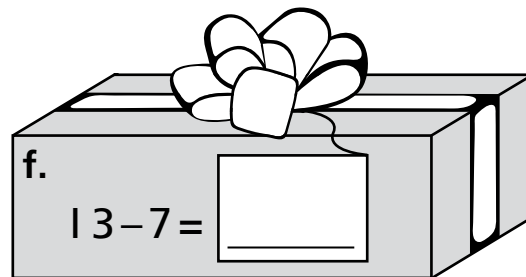
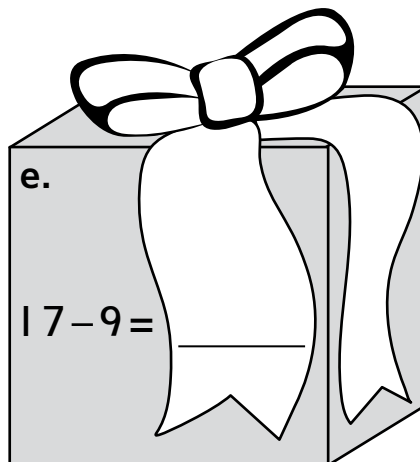
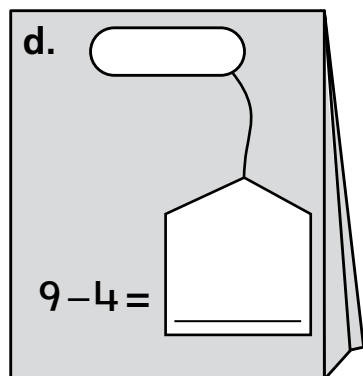
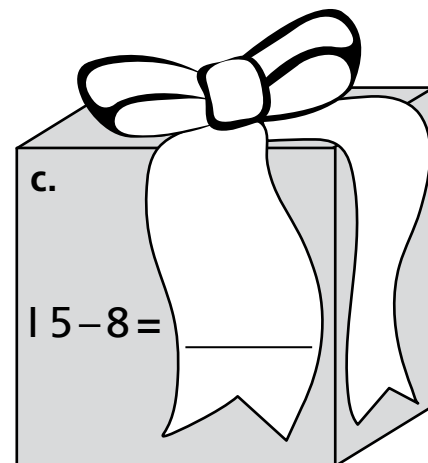
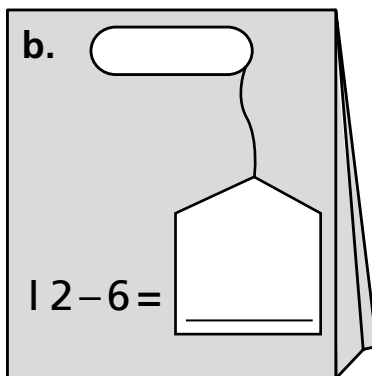
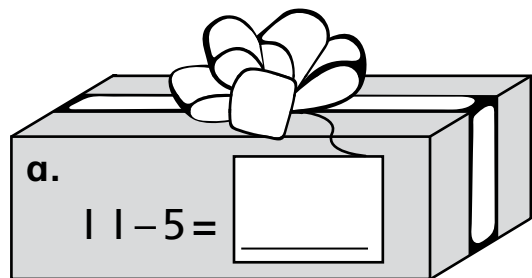
13	11	7	12	9	6	8	IN
							OUT

9	7	13	14	8	15	10	IN
							OUT

Plenty of Presents

Name: _____

Complete each number fact.



Super Spokes

