

3

Addition and Subtraction (within 20)

ADDITION BY COUNTING

Vocabulary 
 ♦ Addition ♦ Subtraction

8 bananas and 9 bananas are 17 bananas.

$$\begin{array}{r} 8 \\ + 9 \\ \hline 17 \end{array} = \begin{array}{l} 8 \text{ ones} \\ + 9 \text{ ones} \\ \hline 17 \text{ ones} = 1 \text{ ten and } 7 \text{ ones} \end{array}$$



The sum is **seventeen**.

12 balloons and 7 balloons are 19 balloons.

$$\begin{array}{r} 12 \\ + 7 \\ \hline 19 \end{array} = \begin{array}{l} 12 \text{ ones} \\ + 7 \text{ ones} \\ \hline 19 \text{ ones} = 1 \text{ ten and } 9 \text{ ones} \end{array}$$



The sum is **nineteen**.

Short Method

Step 1: Arrange the numbers one below the other as shown on the right.

Step 2: Add the ones.

$$2 \text{ ones} + 7 \text{ ones} = 9 \text{ ones}$$

Write 9 in the ones column below the line.

Step 3: There is 1 ten in the tens column at the left.

So, we write 1 in the tens column below the line.

The answer is **19**.



T	O
1	2
	7
1	9

↑ Add the ones
 ↑ Add the tens

Exercise 3A



Add the following. One has been done for you.

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 4 \\ + \quad 5 \\ \hline 1 \quad 9 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 7 \\ + \quad 2 \\ \hline 1 \quad 9 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 2 \\ + \quad 5 \\ \hline 1 \quad 7 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 3 \\ + \quad 2 \\ \hline 1 \quad 5 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 1 \\ + \quad 0 \\ \hline 1 \quad 1 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ \quad 3 \\ + 1 \quad 1 \\ \hline 1 \quad 4 \end{array}$$

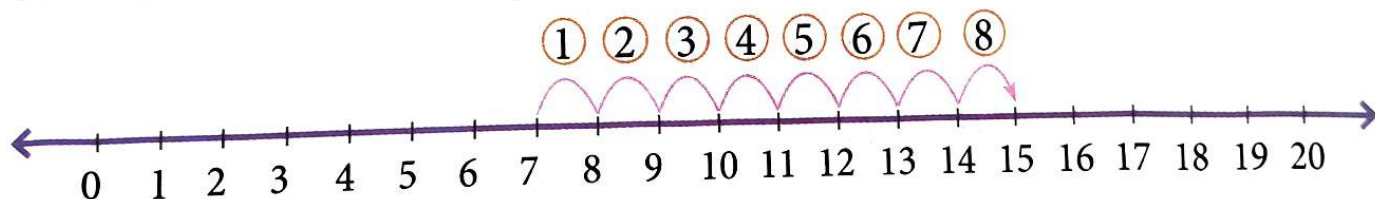
$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 9 \\ + \quad 0 \\ \hline 1 \quad 9 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 4 \\ + \quad 2 \\ \hline 1 \quad 6 \end{array}$$

ADDITION USING THE NUMBER LINE

We can add numbers using the number line.

To add 7 and 8 using the number line, put your finger on 7 and count 8 more numbers to the right of 7. You will reach number 15.



So, $7 + 8 = 15$.

Exercise 3B



1. Use the above number line to add the following.

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 0 \\ + \quad 4 \\ \hline 1 \quad 4 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 6 \\ + \quad 2 \\ \hline 1 \quad 8 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 3 \\ + \quad 3 \\ \hline 1 \quad 6 \end{array}$$

$$\begin{array}{r} \text{T} \quad \text{O} \\ 1 \quad 2 \\ + \quad 5 \\ \hline 1 \quad 7 \end{array}$$

2. Find the sum using the number line.

$$(a) \quad 13 + 5 = 18$$

$$(b) \quad 11 + 3 = 14$$

$$(c) \quad 14 + 4 = 18$$

ADDITION TABLE

Complete the addition table.

+	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10	11
2	2	3	4	5	6	7	8	9	10	11	12
3	3	4	5	6	7	8	9	10	11	12	13
4	4	5	6	7	8	9	10	11	12	13	14
5	5	6	7	8	9	10	11	12	13	14	15
6	6	7	8	9	10	11	12	13	14	15	16
7	7	8	9	10	11	12	13	14	15	16	17
8	8	9	10	11	12	13	14	15	16	17	18
9	9	10	11	12	13	14	15	16	17	18	19
10	10	11	12	13	14	15	16	17	18	19	20

Now, write the sum of the following.

1. $6 + 8 = 14$

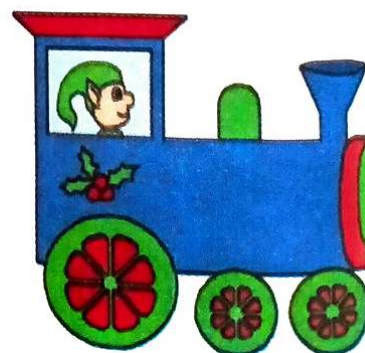
2. $7 + 10 = 17$

3. $9 + 6 = 15$

4. $10 + 3 = 13$

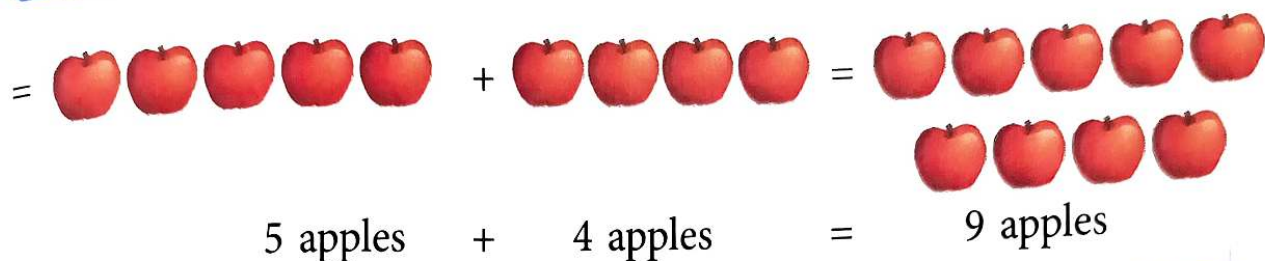
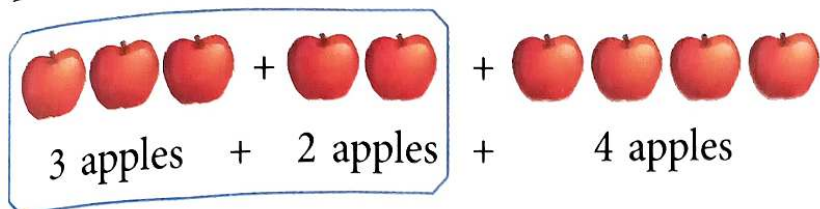
5. $5 + 9 = 14$

6. $8 + 7 = 15$



ADDITION OF THREE OR MORE NUMBERS

In the following groups, let us find out how many apples are there altogether.



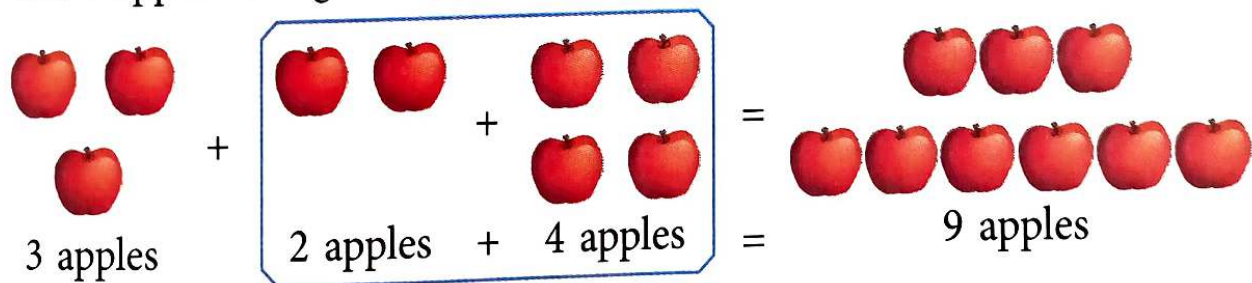
In short (number form), we can write

$$3 + 2 + 4 = 5 + 4 = 9$$

First add 3 and 2, and get 5. Now, add 5 and 4, and get 9, as the final sum.

You could also have found the sum as under:

First add 2 apples and 4 apples and get 6 apples. Then, add 6 apples and 3 apples and get 9 apples.



In short (number form), we can write

$$3 + 2 + 4 = 3 + 6 = 9$$

Let us find the total number of books in the bookcase.



Method 1

$$\begin{array}{r} 3 \\ 8 \\ + 4 \\ \hline 15 \end{array}$$

11

Method 2

$$\begin{array}{r} 3 \\ 8 \\ + 4 \\ \hline 15 \end{array}$$

12

Note: You may add three or more numbers by taking the numbers in any order.



Class Work

Add the following by two methods.

1.

$$\begin{array}{r} 5 \\ 2 \\ + 7 \\ \hline 14 \end{array}$$

7

$$\begin{array}{r} 5 \\ 2 \\ + 7 \\ \hline 14 \end{array}$$

9

2.

$$\begin{array}{r} 9 \\ 6 \\ + 2 \\ \hline 17 \end{array}$$

15

$$\begin{array}{r} 9 \\ 6 \\ + 2 \\ \hline 17 \end{array}$$

8

3.

$$\begin{array}{r} 5 \\ 8 \\ + 4 \\ \hline 17 \end{array}$$

13

$$\begin{array}{r} 5 \\ 8 \\ + 4 \\ \hline 17 \end{array}$$

12

Exercise 3C

Add the following.

1.

$$\begin{array}{r} 1 \\ 2 \\ + 3 \\ \hline 6 \end{array}$$

2.

$$\begin{array}{r} 2 \\ 3 \\ + 4 \\ \hline 9 \end{array}$$

3.

$$\begin{array}{r} 1 \\ 5 \\ + 7 \\ \hline 13 \end{array}$$

4.

$$\begin{array}{r} 7 \\ 1 \\ + 3 \\ \hline 11 \end{array}$$

5.

$$\begin{array}{r} 2 \\ 4 \\ + 6 \\ \hline 12 \end{array}$$

6.

$$\begin{array}{r} 2 \\ 8 \\ + 3 \\ \hline 13 \end{array}$$

7.

$$\begin{array}{r} 6 \\ 5 \\ + 4 \\ \hline 15 \end{array}$$

8.

$$\begin{array}{r} 9 \\ 0 \\ + 3 \\ \hline 12 \end{array}$$

9.

$$\begin{array}{r} 6 \\ 7 \\ + 6 \\ \hline 19 \end{array}$$

10.

$$\begin{array}{r} 5 \\ 5 \\ + 8 \\ \hline 18 \end{array}$$

SUBTRACTION

There are 16 pencils in all. 4 pencils are taken away.



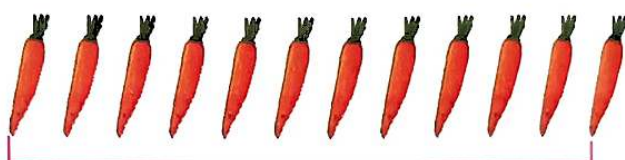
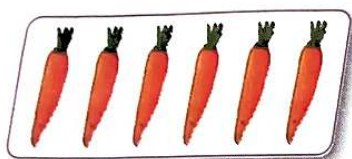
T	O
1	6
-	4
1	2

4 pencils taken away

12 pencils remain

We say, 16 pencils - 4 pencils = 12 pencils and write $16 - 4 = 12$.

There are 18 carrots in all. 6 carrots are taken away.



T	O
1	8
-	6
1	2

6 carrots taken away

12 carrots remain

18 carrots - 6 carrots = 12 carrots

Short Method

Step 1: Arrange the numbers one below the other as shown on the right.

Step 2: Subtract the ones.

8 ones - 6 ones = 2 ones

Write 2 under the ones column below the line.

Step 3: There is 1 ten in the tens column. So, we write 1 in the tens column below the line.

The answer is 12.

T	O
1	8
-	6
1	2

Seema had 12 mangoes. She ate all the mangoes.



No mango was left with her now.

From the above example, we see that on subtracting a number from itself, we get 0 as the difference.

T	O
1	2
-	1
	2
	0

Exercise 3D



Subtract the following. One has been done for you.

1.

	T	O
1	9	
-	3	
	1	6

2.

	T	O
1	8	
-	7	
	1	1

3.

	T	O
1	7	
-	4	
	1	3

4.

	T	O
1	3	
-	3	
	1	0

5.

	T	O
1	7	
-	1	5
	0	2

6.

	T	O
1	8	
-	1	2
	0	6

7.

	T	O
1	9	
-	1	9
	0	0

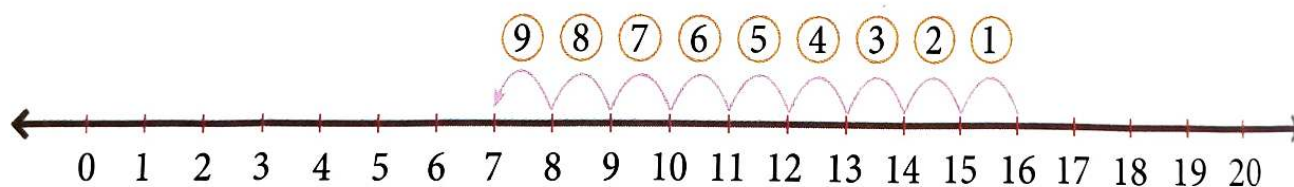
8.

	T	O
1	5	
-	1	1
	0	4

SUBTRACTION USING THE NUMBER LINE

We can subtract numbers using the number line.

To subtract 9 from 16 using the number line, put your finger on 16 and then count the numbers backwards nine times. You will reach number 7.



So, $16 - 9 = 7$.

Exercise 3E



1. Use the above number line to subtract the following.

(a)

	T	O
1	2	
-	1	0
	0	2

(b)

	T	O
1	4	
-	4	
	1	0

(c)

	T	O
1	4	
-	1	1
	0	3

(d)

	T	O
1	9	
-	1	5
	0	4

2. Find the difference using the number line.

(a) $18 - 8 = 10$

(b) $15 - 13 = 2$

(c) $16 - 6 = 10$

3. Solve the following word problems.



- (a) There are 12 bananas and 6 apples in a basket.

How many fruits are there altogether in the basket?
(+)



Workspace

$$\begin{array}{r} 12 \\ + 6 \\ \hline 18 \end{array}$$



- (b) There are 15 children in the park. 3 come out of the park.

How many children remain in the park?
(-)

$$\begin{array}{r} 15 \\ - 3 \\ \hline 12 \end{array}$$

- (c) 11 children are playing football. 6 more children join them.

How many children are playing now?



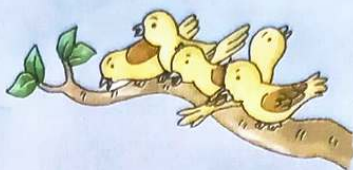
$$\begin{array}{r} 11 \\ + 6 \\ \hline 17 \end{array}$$



- (d) Ritika had 14 cherries with her. She gave 4 of them to her sister. How many cherries are left with Ritika?
(-)

$$\begin{array}{r} 14 \\ - 4 \\ \hline 10 \end{array}$$

- (e) There are 17 birds on a tree. 5 birds fly away. How many birds are left on the tree?
(-)



$$\begin{array}{r} 17 \\ - 5 \\ \hline 12 \end{array}$$

Chapter Test



Tick (✓) the correct answer. (Q. 1 to Q. 6)

1. What number is equal to 7 ones + 7 ones?

(a) 13 ☒ (b) 14 (c) 7 (d) 17

2. 5 less than 17 equals

(a) 13 (b) 10 ☒ (c) 12 (d) 11

3. Which of the following has the smallest answer?

(a) $\begin{array}{r} 8 \\ + 7 \\ \hline 15 \end{array}$ ☒ (b) $\begin{array}{r} 17 \\ - 7 \\ \hline 10 \end{array}$ (c) $\begin{array}{r} 9 \\ + 9 \\ \hline 18 \end{array}$ (d) $\begin{array}{r} 15 \\ - 4 \\ \hline 11 \end{array}$

4. Which of the following is same as 18?

☒ (a) $20 - 2$ (b) $10 + 2 + 7$ (c) $8 + 6 + 5$ (d) $19 - 3$

5. Nidhi makes 15 aloo parathas. She used 9 of them for dinner and kept the remaining. How many parathas did she keep?

(a) 9 (b) 5 ☒ (c) 6 (d) 7

6. Abhi has 11 books. Rohan has 9 books more than Abhi. How many books does Rohan have?

(a) 19 (b) 2 (c) 18 ☒ (d) 20

7. Fill in the blanks.

(a) $6 + 6 + 6$ is 18

(b) $3 +$ 13 $= 16$

(c) $20 -$ 1 $= 19$

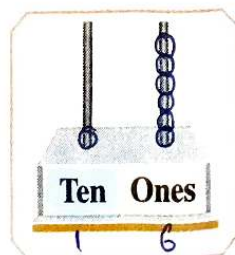
(d) 8 plus 7 minus 5 = 10

- (e) Arun sees 18 ducks in a pond. 7 of them swim away. How many ducks can Arun see now? 11

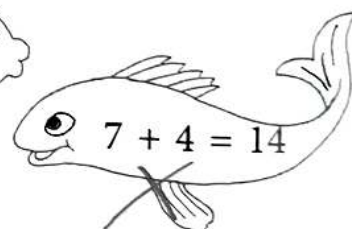
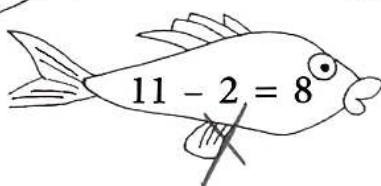
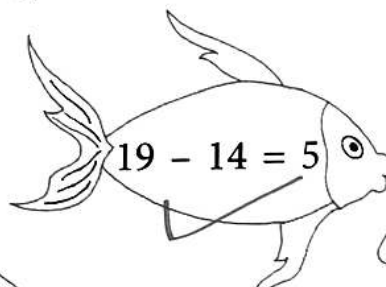
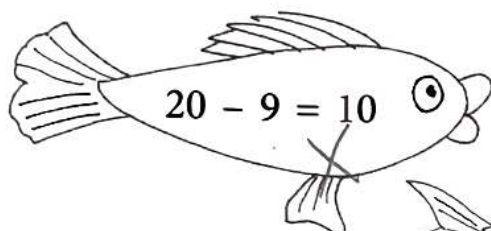
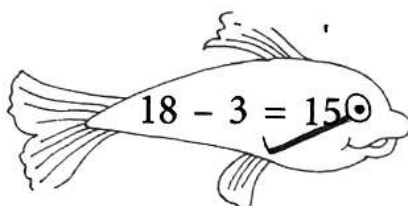
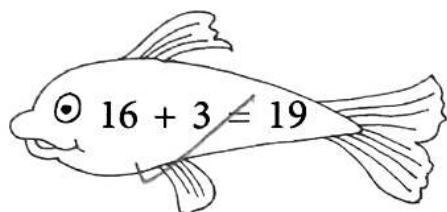
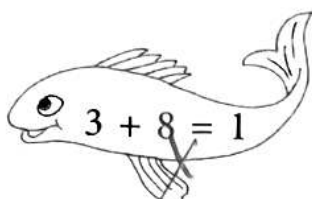
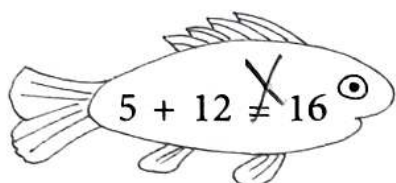
- (f) 10 girls are jumping the rope. 5 more girls join them. Now 15 girls are jumping the rope.

8. Show the number that equals $5 + 4 + 7$ on the abacus.

$$5 + 4 + 7 = 16$$



1. Mayank wants to catch only those fish which have correct answers on them. Colour the fish that Mayank caught.



2. In the grid of numbers given below, there are 10 hidden addition problems. Follow the numbers down or across and colour the addition problems. One has been done for you.

3	+4	=7	6	2	0	1	5	6	8
9	0	5	3	2	1	7	6	5	4
1	2	8	4	5	3	9	2	2	1
6	0	7	4	0	4	8	3	2	1
3	3	8	7	3	2	1	9	5	3
9	6	6	3	3	6	2	3	4	8
0	3	5	0	8	2	4	4	1	3
1	4	4	7	1	6	5	6	1	3
2	2	9	0	1	8	7	0	1	2
4	1	5	0	1	4	4	3	7	9

