

When two or more numbers are put together, it is called **addition**. The numbers to be added are called addends and the number we get after adding is called the **sum** of these numbers. The sum is always greater than the numbers being added.



Addition of 4-digit Numbers

We have already learnt how to add 1-digit, 2-digit and 3-digit numbers. Now, we shall learn to add 4-digit numbers.

Addition of 4-digit Numbers (without Regrouping)

To add two or more 4-digit numbers, we arrange the digits of the given numbers in columns of thousands, hundreds, tens and ones. We first add the ones, then the tens, followed by the hundreds and finally the thousands.

Example I : Add 6353 and 2336.

Solution :

Step 1 : Put the numbers in the columns correctly.

Step 2 : Add the ones.

$$3 \text{ ones} + 6 \text{ ones} = 9 \text{ ones}$$

Write 9 in the ones column.

Step 3 : Add the tens.

$$5 \text{ tens} + 3 \text{ ten} = 8 \text{ tens}$$

Write 8 in the tens column.

	Th	H	T	O
	6	3	5	3
+	2	3	3	6
	8	6	8	9



Step 4

: Add the hundreds.

$$3 \text{ hundreds} + 3 \text{ hundreds} = 6 \text{ hundreds}$$

Write 6 in the hundreds column.

Step 5

: Add the thousands.

$$6 \text{ thousands} + 2 \text{ thousands} = 8 \text{ thousands}$$

Write 8 in the thousands column.

$$\text{Therefore, } 6353 + 2336 = 8689.$$

Example II: Add 4346 and 3532 using the expanded form.

Solution : Write the numbers in the expanded form and follow the given steps.

Step 1

: Add the ones.

	Th	H	T	O	
	4	3	4	6	→ 4000 + 300 + 40 + 6
+	3	5	3	2	→ 3000 + 500 + 30 + 2
				8	<hr/> <hr/>

Step 2

: Add the tens.

	Th	H	T	O	
	4	3	4	6	→ 4000 + 300 + 40 + 6
+	3	5	3	2	→ 3000 + 500 + 30 + 2
			7	8	<hr/> <hr/>

Step 3

: Add the hundreds.

	Th	H	T	O	
	4	3	4	6	→ 4000 + 300 + 40 + 6
+	3	5	3	2	→ 3000 + 500 + 30 + 2
		8	7	8	<hr/> <hr/>





Step 4 : Add the thousands.

	Th	H	T	O	
	4	3	4	6	→ 4000 + 300 + 40 + 6
+	3	5	3	2	→ 3000 + 500 + 30 + 2
	7	8	7	8	<u>7000 + 800 + 70 + 8</u>

Therefore, $4346 + 3532 = 7878$.

Example III : Add 8573 and 1426, using both place value and the expanded form.

Solution : Using place value Using expanded form

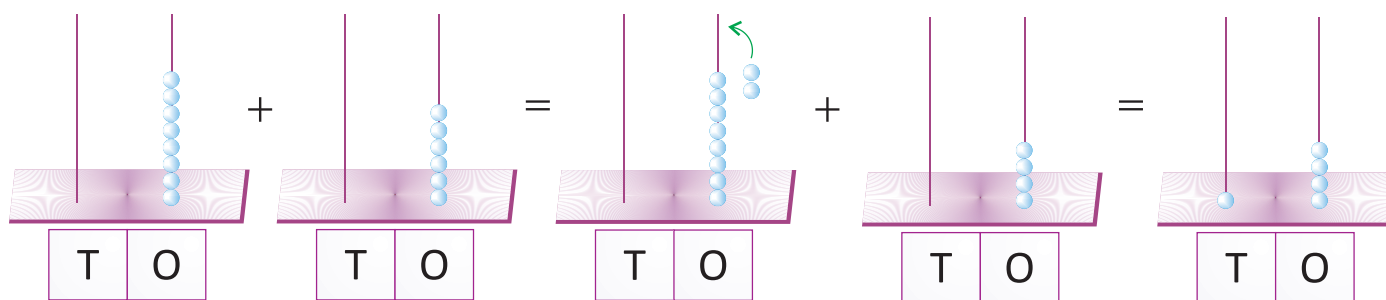
	Th	H	T	O	
	8	5	7	3	8000 + 500 + 70 + 3
+	1	4	2	6	1000 + 400 + 20 + 6
	9	9	9	9	<u>9000 + 900 + 90 + 9 = 9999</u>

Therefore, $8573 + 1426 = 9999$.

Addition of 4-digit numbers (with regrouping)

When we add two numbers such as 8 ones and 6 ones, we need to regroup the numbers to make addition easier. We can take 2 one from the 6 ones, and add 2 one to 8 ones to make a ten.

So, $8 \text{ ones} + 6 \text{ ones} = 8 \text{ ones} + 2 \text{ one} + 4 \text{ ones} = 10 \text{ ones} + 4 \text{ ones} = 1 \text{ ten and } 4 \text{ ones.}$





Similarly, we can regroup tens, hundreds and thousands.

- a. $8 \text{ tens} + 8 \text{ tens} = 16 \text{ tens} = 10 \text{ tens} + 6 \text{ tens} = 1 \text{ hundred and } 6 \text{ tens}$
- b. $3 \text{ hundreds} + 9 \text{ hundreds} = 12 \text{ hundreds} = 10 \text{ hundreds} + 2 \text{ hundreds} = 1 \text{ thousand and } 2 \text{ hundreds.}$

Example IV : Add 5265 and 3578.

Solution :

Step 1 : Put the numbers in the columns correctly.

Step 2 : Add the ones.

$5 \text{ ones} + 8 \text{ ones} = 13 \text{ ones} = 1 \text{ ten and } 3 \text{ ones.}$ Write 3 in the ones column and take 1 ten to the tens column.

Step 3 : Add the tens.

$6 \text{ tens} + 7 \text{ tens} + 1 \text{ ten (carried over)} = 14 \text{ tens} = 1 \text{ hundred and } 4 \text{ tens}$

Write 4 in the tens column and take 1 hundred to the hundreds column.

Th	H	T	O
5	¹ 2	¹ 6	5
+ 3	5	7	8
8	8	4	3

Step 4 : Add the hundreds.

$2 \text{ hundreds} + 5 \text{ hundreds} + 1 \text{ hundred (carried over)} = 8 \text{ hundreds}$

Write 8 in the hundreds column.

Step 5 : Add the thousands.

$5 \text{ thousands} + 3 \text{ thousands} = 8 \text{ thousands}$

Write 8 in the thousands column.

Therefore, $5265 + 3578 = 8843.$



Facts to Know

- ❖ Addition is a process of putting things together.
- ❖ The numbers being added are called addends.
- ❖ The answer after adding addends is called sum.





Addition of Three 4-digit Numbers

Example V : Add 4258, 2442 and 1365.

Solution :

Step 1 : Put the numbers in the columns correctly.

Step 2 : Add the ones.

8 ones + 2 one + 5 ones = 15 ones
= 1 ten and 5 ones

Write 5 in the ones column and take 1 ten to the tens column.

Step 3 : Add the tens.

5 tens + 4 tens + 6 tens + 1 ten (carried over) = 16 tens
= 1 hundred and 6 ten

Write 6 in the tens column and take 1 hundred to the hundreds column.

Step 4 : Add the hundreds.

2 hundreds + 4 hundreds + 3 hundreds + 1 hundred (carried over) = 10 hundreds = 1 thousand and 0 hundred

Write 0 in the hundreds column and take 1 thousand to the thousands column.

Step 5 : Add the thousands.

4 thousand + 2 thousands + 1 thousands + 1 thousand (carried over) = 8 thousands

Write 8 in the thousands column.

Therefore, $4258 + 2442 + 1365 = 8065$.

Th	H	T	O
¹ 4	¹ 2	¹ 5	8
2	4	4	2
+ 1	3	6	5
8	0	6	5





Exercise 3.1

1. Solve the following.

a.

Th	H	T	O
3	5	3	6
+	4	4	4

b.

Th	H	T	O
3	5	2	2
+	5	2	6

c.

Th	H	T	O
2	4	1	5
+	4	3	5

2. Write each of the following in expanded form and add.

a. $5253 + 3626$
5344

b. $6436 + 2542$

c. $3286 + 6613$

3. Add and write answer in each of the following.

a.

Th	H	T	O
4	4	6	2
+	3	8	8

b.

Th	H	T	O
3	6	4	9
+	5	7	6

c.

Th	H	T	O
4	3	4	8
+	2	6	9

4. Write each of the following in columns and add.

a. $3867 + 4498$

b. $4978 + 2935$

c. $3469 + 3893$

d. $6564 + 2438$

5. Add the following.

a.

Th	H	T	O
3	5	6	5
	1	8	2
+	2	3	4

b.

Th	H	T	O
2	5	4	2
	8	2	8
+	6	3	8

c.

Th	H	T	O
6	4	3	8
	3	4	3
+		6	9





Order of Addends

Let us see what happens when we change the order of the addends.

Let us add 5366 to 4423 and 4423 to 5366.

Th	H	T	O
5	3	6	6
+	4	4	2
	4	2	3
	9	7	8
			9

Answer : 9789

Th	H	T	O
4	4	2	3
+	5	3	6
	9	7	8
			9

Answer : 9789

We see that in both the cases, we get the same answer. So, the order of the addends does not change the sum.



Facts to Know

- ❖ We can add two or more numbers in any order, the sum remains the same.

Example VI: Add 3134, 444 and 408.

Solution : We can add these numbers in three ways :

1. $3134 + (444 + 408) = 3134 + 852 = 3986$
2. $(3134 + 408) + 444 = 3542 + 444 = 3986$
3. $(3134 + 444) + 408 = 3578 + 408 = 3986$



Easy to Add

1. Adding zero

Zero added to a number is equal to the number itself.

For Example : $828 + 0 = 828$

$5936 + 0 = 5936$





2. Adding numbers that end with a zero

For Example : Add 500 and 300.

You can do this without actual addition on paper.

500 + 300 actually can be done by adding $5 + 3 = 8$ and then writing two zeros thereafter.

So, $500 + 300 = 800$.

3. Adding 10

10 added to a number increases the value of the digit in the tens place by 1.

For Example : $68 + 10 = 78$; $826 + 10 = 836$; $8249 + 10 = 8259$ etc.

4. Adding 100

100 added to a number increases the value of the digit in the hundreds place by 1.

For Example : $832 + 100 = 932$; $4883 + 100 = 4983$ etc.

5. Adding 1000

1000 added to a number increase the value of the digit in the thousands place by 1.

For Example : $7308 + 1000 = 8308$; $4489 + 1000 = 5489$ etc.



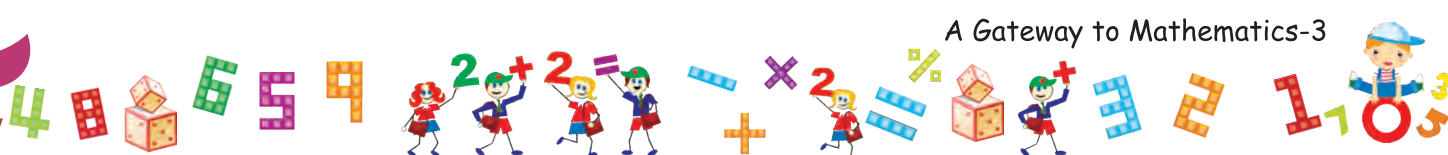
Estimating the Sum

Estimation is a rough calculation which you make without doing the actual calculation. Suppose you are asked to estimate or guess the answer of $342 + 534$.

Will it be less than 800 or more than 800 ?

You know that $300 + 500 = 800$.

	H	T	O
	3	4	2
+	5	3	4
	8	7	6





As $342 > 300$ and $534 > 500$, the sum of

$342 + 534$ will be more than the sum of $300 + 500$.

So, you can estimate that it will be more than 800.

Now, when we actually add, we get 876 as the answer, which is more than 800.

Missing Addends

Let us learn to find the missing addends.

Observe the following : $400 + \dots\dots\dots = 600$

Since one addend and the sum, both end in two zeros, the missing addend will also end in two zeros.

You know that $4 + 2 = 6$. So, $400 + 200 = 600$.

Similarly, the missing addend in $8000 + \dots\dots\dots = 9000$ will be 1000 as $8000 + 1000 = 9000$, ($8 + 1 = 9$).

Exercise 3.2

1. Fill in the blanks.

- a. $3228 + 4386 = \dots\dots\dots + 3228$
- b. $4836 + \dots\dots\dots = 4364 + 4836$
- c. $2246 + 2430 + 486 = 2430 + \dots\dots\dots + 2246$
- d. $908 + 836 + \dots\dots\dots = 836 + 7440 + 908$

2. Add the following.

- a. $82 + 0 = \dots\dots\dots$
- b. $8548 + 1000 = \dots\dots\dots$
- c. $8349 + 1 = \dots\dots\dots$
- d. $6346 + 100 = \dots\dots\dots$
- e. $9428 + 10 = \dots\dots\dots$
- f. $3587 + 0 = \dots\dots\dots$





3. Estimate the sum and tick (✓) the appropriate option. Then solve the sum in each of the following.

a.

	H	T	O	
	3	2	3	Less than 800
+	4	6	9	More than 800
				<i>Answer:</i>

b.

	H	T	O	
	1	3	9	Less than 550
+	4	2	3	More than 550
				<i>Answer:</i>

c.

	H	T	O	
	2	2	0	Less than 600
+	4	0	2	More than 600
				<i>Answer:</i>

d.

	H	T	O	
	3	7	4	Less than 750
+	4	0	8	More than 750
				<i>Answer:</i>

Word Problems

Example VII : The number of men and women in a town are 2594 and 5638 respectively. Find the total number of people in the town.

Solution :

Number of men = 2594

Number of women = 5638

+

Th	H	T	O
¹ 2	¹ 5	¹ 9	4
5	6	3	8
8	2	3	2

Thus, total number of people = 2594 + 5638 = 8232.

Example VIII : An International calculator company sold 3462 calculator sets in America, 1626 calculator sets in Japan and 2875 calculator sets in India. How many calculator sets are sold by the company in all ?



Solution :

Number of calculator sets sold in America = 3462

Number of calculator sets sold in Japan = 1626

Number of calculator sets sold in India = 2875

Th	H	T	O
$\overset{1}{3}$	$\overset{1}{4}$	$\overset{1}{6}$	2
1	6	2	6
2	8	7	5
7	9	6	3

Thus, total number of calculator sets sold = $3462 + 1626 + 2875 = 7963$.



Exercise 3.3

1. These are 4660 mangoes, 2689 apples and 1676 plums in a garden. How many fruits are there altogether ?
2. A man travelled 2686 km in one month and 3426 km in another month. How much did the man travel altogether ?
3. 4608 passengers were travelling in one train and 4576 passengers were travelling in another train. How many passengers were travelling altogether ?
4. In a town 2623 are men and 5268 are women. How many people are there altogether ?
5. There are 4265 boys, 4034 girls and 1608 teachers in a college. What is the total population ?
6. A cold drink factory produces 3306, 3928 and 2084 bottles of cold drink in three days. How many bottles of cold drink are produced in all ?
7. In a library, there are 2842 books of English, 4989 books of Mathematics and 1288 books of Chemistry. How many books are there in all ?
8. In a mobile company these are 4665 males and 3286 females. Find the total number of members in the company.





Points to Remember



- ❖ We use addition when we put together two or more numbers.
- ❖ The numbers being added are called addends.
- ❖ We can add two or more numbers in any order, the sum remains the same.
- ❖ The total of two or more numbers is called their sum.
- ❖ Zero added to a number is equal to the number itself.
- ❖ 100 added to a number increases the value of the digit in the hundreds place by 1.



EXERCISE

1. Multiple Choice Questions (MCQs)

Tick (✓) the correct option:

a. 4 thousand and 3 hundreds is equal to

(i) 43 thousands

(ii) 43 tens

(iii) 43 hundreds

(iv) 430 thousands

b. Addition of 2267, 4898 and 2532 is equal to

(i) 8697

(ii) 9697

(iii) 9626

(iv) 9627

c. 1000 added to a number increases the value of the digit in the thousand place by

(i) 100

(ii) 1000

(iii) 1

(iv) 10





d. Add 2694, 1286 and 3265 is equal to

(i) 7242

(ii) 7254

(iii) 7240

(iv) 7245

e. The sum of the largest 3-digit number and 10 is equal to

(i) 1090

(ii) 1099

(iii) 1009

(iv) 1190

f. The sum of the smallest 4-digit number and 425 is equal to

(i) 1025

(ii) 1425

(iii) 1745

(iv) none of these

2. Add the following.

a.

Th	H	T	O
5	2	8	3
+	2	4	0

b.

Th	H	T	O
4	6	0	7
+	3	3	5

c.

Th	H	T	O
4	5	2	3
+	3	3	7

d.

Th	H	T	O
3	4	5	9
	3	6	8
+	2	4	2

e.

Th	H	T	O
2	4	0	9
4	3	5	2
+	1	2	8

f.

Th	H	T	O
2	9	0	6
3	4	3	2
+	2	4	3

3. Solve the sums in your notebook.

a. $2946 + 6003$

b. $2094 + 3803$

c. $6496 + 3202$

d. $5132 + 4847$





4. Add by using the expanded and short forms in your notebook.

- a. $6262 + 3233$ b. $6342 + 3534$ c. $6025 + 3663$ d. $3264 + 4622$

5. Solve the following.

- a. $400 + 660 = \dots\dots\dots$
 b. $525 + 205 = \dots\dots\dots$
 c. $1600 + 800 = \dots\dots\dots$
 d. $4000 + 4060 = \dots\dots\dots$

6. Add the numbers horizontally.

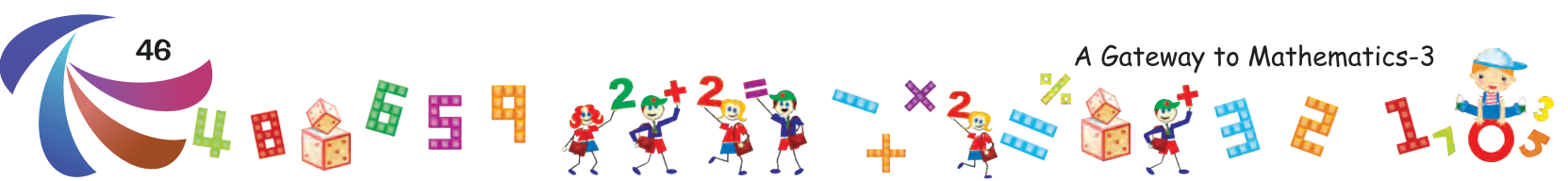
- | | | | | | | | | |
|----|---|---|---|---|---|---|---|------------|
| | H | T | O | | H | T | O | |
| a. | 5 | 6 | 4 | + | 3 | 5 | 8 | = |
| b. | 2 | 8 | 7 | + | 4 | 3 | 6 | = |
| c. | 3 | 3 | 9 | + | 4 | 2 | 5 | = |
| d. | 5 | 6 | 8 | + | 3 | 8 | 6 | = |

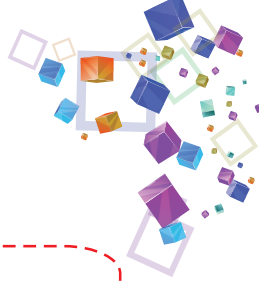
7. Solve the following word problems.

- a. In a town, there were 2468 men, 3827 women, and 625 children. How many people were there in the town ?
- b. In a library, there were 3644 Science books. The librarian puts 4236 Maths books. How many books are there in all ?
- c. In a godown, there are 2472 bags of wheat and 1328 bags of rice. Find the total number of bags in the godown.



I am a 3-digit number. After adding 1 to me, you need to regroup the ones, tens and hundreds. Which number am I ?





Lab Activity

Objective : To understand the concept of adding by expanding.

- Materials Required :**
- ❖ 4 sets of cards in four different colours with numbers 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 written on them.
 - ❖ 4 containers for keeping the cards.
 - ❖ Each set of cards to be placed in a separate container. Yellow cards for 1000s, orange for 100s, pink for 10s and blue for 1s.
 - ❖ Crayons of the same colour for each child.

Process :

- ❖ The class will be divided into groups of 4 students.
- ❖ 4 children from a group are asked to pick up a card from each container as shown here.
- ❖ Another group of children also pick up 4 cards in the same way as shown in above step.
- ❖ Children from both the groups note the numbers and add them as shown here.
- ❖ Other groups of 4 + 4 children are asked to pick up the cards and add as shown in steps above.
- ❖ At least 4 such sums should be done. More practice will help the children understand the problem better.
- ❖ The children should be asked to use the same colour code for the different digits as shown.

Th	H	T	O
4	5	2	3

Th	H	T	O
3	4	4	6

Th	H	T	O
4	5	2	3
+	3	4	4