3. Addition and Subtraction

❑ Addition : Revision

Study the following example.

✦ For the first day of a cricket match, 23,456 tickets were sold while 14,978 tickets were sold for the second day. How many tickets were sold in all?

The total number of tickets sold was 38,434.

```
    2 3 4 5 6
+   1 4 9 7 8
    3 8 4 3 4
```

·······································◦ **Problem Set 7** ◦·······································

Add :

(1)	40722	(2)	56427	(3)	64027	(4)	33216
+	13819	+	10648	+	28409	+	28540

❑ Addition of six-digit and seven-digit numbers

Last year, you have learnt to add five-digit numbers. Six-and seven-digit numbers can be added using the same method.

Study the following examples.

Add :

Example (1) 1,43,057 + 4,21,689

L	TTh	Th	H	T	U
			1	1	
1	4	3	0	5	7
+ 4	2	1	6	8	9
5	6	4	7	4	6

Example (2) 26,42,073 + 7,39,478

TL	L	TTh	Th	H	T	U
1		1		1	1	
2	6	4	2	0	7	3
+	7	3	9	4	7	8
3	3	8	1	5	5	1

Example (3) 3,12,469 + 758 + 24,092

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

Example (4) 64 + 409 + 5,13,728

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

In the examples 3 and 4, the numbers are carried over mentally.

Add :

(1) 42,311 + 65,36,624

(2) 3,17,529 + 8,04,613

(3) 12,42,746 + 4,83,748

(4) 24,12,636 + 23,19,058

(5) 2,654 + 71,209 + 5,03,789

(6) 29 + 726 + 51,36,274

(7) 14,02,649 + 524 + 28,13,749

(8) 23,45,678 + 9,87,654

(9) 22 + 6,047 + 3,84,527

(10) 2,345 + 65,432 + 76,54,369

Study the following word problem.

✦ During the polio eradication campaign, 3,17,658 children were given the polio vaccine in one District and 2,04,969 children in another. Altogether, how many children got the vaccine ?

$$\begin{array}{r} 3\,1\,7\,6\,5\,8 \\ +\quad 2\,0\,4\,9\,6\,9 \\ \hline 5\,2\,2\,6\,2\,7 \\ \hline \end{array}$$

Altogether, 5,22,627 children got the vaccine.

Solve the following problems.

1. In a certain election, 13,47,048 women and 14,29,638 men cast their votes. How many votes were polled altogether ?

2. What will be the sum of the smallest and the largest six-digit numbers ?

3. If Surekhatai bought a tractor for ₹ 8,07,957 and a thresher for ₹ 32,609, how much money did she spend altogether ?

4. A textile mill produced 17,24,938 metres of cloth last year and 23,47,056 metres this year. What was the total production for the two years ?

5. If the Government gave ₹ 34,62,950 worth of computers and ₹ 3,26,578 worth of TV sets to the schools, what is the total amount it spent on this equipment ?

☐ **Subtraction : Revision**

Study the following example.

✦ Last year , 38,796 students took a certain exam. This year the number was 47,528. How many more students took the exam this year ?

$$\begin{array}{r} 4\,7\,5\,2\,8 \\ -\ 3\,8\,7\,9\,6 \\ \hline 0\,8\,7\,3\,2 \\ \hline \end{array}$$

8,732 more students took the exam this year.

Subtract :

(1) 64293
    − 28547
    _____

    _____

(2) 37058
    − 23469
    _____

    _____

(3) 71540
    − 58628
    _____

    _____

(4) 50432
    − 48647
    _____

    _____

☐ **Subtraction of six and seven-digit numbers**

You have learnt to carry out subtractions of five-digit numbers. Using the same method, we can do subtractions of numbers with more than five digits.
Study the following examples.

Subtract :

Example (1) 65,07,843 – 9,25,586

	14				13	
5	4̸	10		7	3̸	13
6̸	5̸	0̸	7	8̸	4̸	3̸
−	9	2	5	5	8	6
5	5	8	2	2	5	7

Example (2) 34,61,058 – 27,04,579

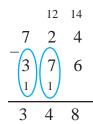| 3	4	6	1	0	5	8
− 2	7	0	4	5	7	9
0	7	5	6	4	7	9

As shown in the above example, learn to subtract by keeping the borrowed numbers in your mind without writing them down.

Subtraction by another method

Before subtracting one number from another, if we add 10 or 100 to both of them, the difference remains the same. Let us use this fact.

Example : Subtract : 724 – 376

```
      12  14
   7  2   4
 − 3  7   6
   1  1
 _____
   3  4   8
```

As we cannot subtract 6 from 4, we shall add a ten to both the numbers. For the upper number, we untie one tens. We add those ten units to 4 units to get 14 units.

We write the tens added to the lower number below it, in the tens place.

We subtract 6 units from 14.

Now, we cannot subtract (7 + 1) i.e. 8 tens from 2 tens. So, we add one hundred to both the numbers. For the upper number, we untie the hundred and add the ten tens to 2 tens. To add the hundred to the lower number, we write it below, in the hundreds place. 12 tens minus 8 tens is 4 tens. And 7 hundreds minus (3 + 1) i.e. 4 hundreds is 3 hundreds. Hence, the difference is 348.

Example (1)

4	0	5	8	2	5
−		9	8	7	6
1	1	1	1	1	
3	9	5	9	4	9

Example (2)

2	5	2	0	2	1	1
−		2	1	8	9	5	0
			1	1	1		
2	3	0	1	2	6	1

········○ **Problem Set 11** ○········

Subtract :

(1) 8,57,513 − 4,82,256   (2) 13,17,519 − 10,07,423   (3) 68,34,501 − 23,57,823

(4) 45,43,827 − 12,05,938   (5) 70,12,345 − 28,64,547   (6) 38,01,213 − 37,54,648

Study the following word problem.

In 2001, the population of a city was 21,43,567. In 2011, it was 28,09,878. By how much did the population grow ?

The population grew by 6,66,311.

$$
\begin{array}{r}
2\,8\,0\,9\,8\,7\,8 \\
-\,2\,1\,4\,3\,5\,6\,7 \\
\hline
0\,6\,6\,6\,3\,1\,1
\end{array}
$$

········○ **Problem Set 12** ○········

1. Prathamesh wants to buy a laptop worth 27,450 rupees. He has 22,975 rupees. What is the amount he still needs to be able to buy the laptop ?

2. A company produced 44,730 scooters in a certain year and 43,150 in the next. How many more scooters did they produce in the previous year ?

3. In a certain city, the number of men is 16,37,856 and the number of women is 16,52,978. By how many does the number of women exceed the number of men ?

4. An organization decided to collect 25,00,000 rupees for a certain project. They collected 26,57,340 through donations and other kinds of aid. By how much did they exceed their target ?

5. Use the numbers 23,849 and 27,056 to make a subtraction problem. Solve the problem.

Mixed examples

Study the following solved examples.

Example (1) 4,13,758 + 2,09,542 − 5,16,304

4,13,758 + 2,09,542 − 5,16,304 = 1,06,996

$$
\begin{array}{r}
+\quad 4\,1\,3\,7\,5\,8 \\
2\,0\,9\,5\,4\,2 \\
\hline
6\,2\,3\,3\,0\,0
\end{array}
\qquad
\begin{array}{r}
-\quad 6\,2\,3\,3\,0\,0 \\
5\,1\,6\,3\,0\,4 \\
\hline
1\,0\,6\,9\,9\,6
\end{array}
$$

Example (2) 345678 − 162054 + 600127

345678 − 162054 + 600127 = 7,83,751

$$
\begin{array}{r}
-\quad 3\,4\,5\,6\,7\,8 \\
1\,6\,2\,0\,5\,4 \\
\hline
1\,8\,3\,6\,2\,4
\end{array}
\qquad
\begin{array}{r}
+\quad 1\,8\,3\,6\,2\,4 \\
6\,0\,0\,1\,2\,7 \\
\hline
7\,8\,3\,7\,5\,1
\end{array}
$$

In these examples, both operations, addition and subtraction, have to be done. They are done in the order in which they are given. In actual cases, we need to consider the specific problem to decide which operation must be done first.

Example (3) The total amount spent on building a certain house was ₹ 87,14,530. Of this amount, ₹ 24,72,615 were spent on buying the plot of land, ₹ 50,43,720 on the construction material and the rest on labour charges. What was the amount spent on labour ?

<table>
<tr><td colspan="2">Method : 1</td><td colspan="2">Method : 2</td></tr>
<tr><td>− 8714530
  2472615
  6241915</td><td>→ Total amount spent
→ Cost of plot
→ Cost of material
  and labour</td><td>+ 2472615
  5043720
  7516335</td><td>Cost of plot
Cost of material
Cost of plot and
material</td></tr>
<tr><td>− 6241915
  5043720
  1198195</td><td>→ Cost of material and labour
→ Cost of material
→ Amount spent on labour</td><td>− 8714530
  7516335
  1198195</td><td>Total amount spent
Cost of plot and material
Amount spent on labour</td></tr>
</table>

Let us verify our answer.

+ 2472615	→ Cost of plot
+ 5043720	→ Cost of material
1198195	→ Amount spent on labour
8714530	→ Total cost

The sum total of all the amounts spent tallies with the given total cost. It means that our answer is correct.

····································· ◦【**Problem Set 13**】◦ ·····································

1. The Forest Department planted 23,078 trees of *khair,* 19,476 of *behada* besides trees of several other kinds. If the Department planted 50,000 trees altogether, how many trees were neither of *khair* nor of *behada* ?

2. A city has a population of 37,04,926. If this includes 11,24,069 men and 10,96,478 women, what is the number of children in the city ?

3. The management of a certain factory had 25,40,600 rupees in the labour welfare fund. From this fund, 12,37,865 rupees were used for medical expenses, 8,42,317 rupees were spent on the education of the workers' children and the remaining was put aside for a canteen. How much money was put aside for the canteen ?

4. For a three-day cricket match, 13,608 tickets were sold on the first day and 8,955 on the second day. If, altogether, 36,563 tickets were sold in three days, how many were sold on the third day ?