Subtraction of Numbers

Notes

REVISION

In Class II, we have learnt the subtraction of 2-digit or 3-digit numbers without and with borrowing. Let us revise it through some examples :

EXAMPLE 1 : Subtract 756 from 987.

SOLUTION :

H	T	O
9	8	7
- 7	5	6
2	3	1

Steps

1. Subtraction of ones :
   7 – 6 = 1 ones
2. Subtraction of tens :
   8 – 5 = 3 tens
3. Subtraction of hundreds :
   9 – 7 = 2 hundreds

Hence, 987 – 756 = 231

EXAMPLE 2 : Subtract 395 from 624.

SOLUTION :

	5	11	14
	6	2	4
-	3	9	5
	2	2	9

Steps

1. 4 ones is less than 5 ones. So, we can't subtract 5 from 4.
2. Borrow 1 ten from 2 tens. Then, we get 1 ten + 4 ones = 10 ones + 4 ones = 14 ones Now, 14 ones – 5 ones = 9 ones Write 9 at the ones place.
3. Now from the tens place, we have taken 1 ten from 2 tens. But, 1 ten is less than 9 tens. So, we can't subtract 9 tens from 1 ten.

Hence,

624 – 395 = 229.

Steps

4. Borrow 1 hundred from the hundreds place.
Then, we get 1 hundred + 1 ten = 10 tens + 1 ten = 11 tens Now,
11 tens – 9 tens = 2 tens
Write 2 at the tens place.
5. Since we have taken 1 hundred from 6 hundreds, only 5 hundreds remain.
Then, we get 5 hundreds – 3 hundreds = 2 hundreds.
Write 2 at the hundreds column.

SUBTRACTION OF 4-DIGIT NUMBERS (WITHOUT BORROWING)

How to Subtract :

Step 1 : ***Write the smaller number under the larger number in columns.***

Step 2 : ***Subtract column-wise.***

Subtract ones from ones, tens from tens, hundreds from hundreds and thousands from thousands.

EXAMPLE : *Subtract 3245 from 7866.*

SOLUTION :

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

Hence, 7866 – 3245 = 4621.

Subtracting ones : 6 – 5 = 1 one

Subtracting tens : 6 – 4 = 2 tens

Subtracting hundreds : 8 – 2 = 6 hundreds

Subtracting thousands : 7 – 3 = 4 thousands

EXAMPLE : *Subtract 3252 from 9667.*

SOLUTION :

	Th	H	T	O
	9	6	6	7
-	3	2	5	2
	6	4	1	5

Hence, 9667 – 3252 = 6415

Subtracting ones : 7 – 2 = 5 ones

Subtracting tens : 6 – 5 = 1 ten

Subtracting hundreds : 6 – 2 = 4 hundreds

Subtracting thousands : 9 – 3 = 6 thousands

Checking Answer

For checking the answer, we add the answer to the smaller number. If the obtained sum is equal to the greater number, we say that the answer is correct. Now, check your answer in the above Example 4.

$$\begin{array}{r} 9667 \\ -\ 3252 \\ \hline 6415 \end{array}$$

Is equal to

$$\begin{array}{r} 6415 \\ +\ 3252 \\ \hline 9667 \end{array}$$

It shows that the answer to the question in Example 4 is correct.

SUBTRACTION OF 4-DIGIT NUMBERS (WITH BORROWING)

EXAMPLE 5 : Subtract 3794 from 6283.

SOLUTION :

Step 1 : We write the numbers in columns as shown.

	6	2	8	3
-	3	7	9	4

Step 2 : **Subtracting ones :**

Since 3 is less than 4, we can't subtract.
So, we borrow 1 ten from 8 tens.
Now, 1 ten + 3 ones = 10 + 3 = 13 ones
Also, 13 ones – 4 ones = 9 ones
Write 9 at the ones column.

		7	13	
	6	2	8	3
-	3	7	9	4
				9

Step 3 : After borrowing 1 ten, there are 7 tens in the tens column.

We can’t subtract 9 tens from 7 tens.

We borrow 1 hundred from the hundreds column.

Now 1 hundred + 7 tens = 10 + 7 = 17 tens

Also, 17 tens – 9 tens = 8 tens

Write 8 at the tens column.

		1	7	13
	6	2	8	3
-	3	7	9	4
			8	9

Step 4 : Since, we have taken 1 hundred from 2 hundreds, only 1 hundred remains. But, 7 hundreds can't be subtracted from 1 hundred.

We borrow 1 thousand from the thousands column.

1 thousand + 1 hundred = 10 + 1 = 11 hundreds.

Now, 11 – 7 = 4 hundreds.

Write 4 at the hundreds column.

	5	1	7	13
	6	2	8	3
-	3	7	9	4
		4	8	9

Step 5 : Since, we have taken 1 thousand from 6 thousands, 5 thousands remain in the thousands column

Subtracting, we get 5 – 3 = 2 thousands.

Write 2 at the thousands column.

Hence, 6283 – 3794 = **2489.**

	5	1	7	13
	6	2	8	3
-	3	7	9	4
	2	4	8	9

EXAMPLE : Find the difference between 8532 and 4867 and check your answer.

SOLUTION :

Th	H	T	O
7	14	12	12
8	5	3	2
4	8	6	7
3	6	6	5

We take the following steps for this subtraction :

Step 1 : Arrange the numbers column-wise and start subtracting ones.

Since 2 < 7, borrow 1 ten from the tens column.

Now, 1 ten + 2 ones = 10 ones + 2 ones = 12 ones

Then, 12 ones – 7 ones = 5 ones.

Step 2 : Subtracting tens column :

Since 2 < 6, we can’t subtract 6 from 2.

So, we borrow 1 hundred from the hundreds column.

Now, 1 hundred + 2 tens = 10 tens + 2 tens = 12 tens Then, 12 tens – 6 tens = 6 tens.

Step 3 : Subtracting hundreds column :

Since, 4 < 8, we can't subtract 8 from 4.

So, we borrow 1 thousand from the thousands column.

Now, 1 thousand + 4 hundreds = 10 hundreds + 4 hundreds = 14 hundreds

Then, 14 hundreds – 8 hundreds = 6 hundreds

Step 4 : Subtracting thousands column :

Since 1 thousand is borrowed from 8 thousands, there remain 7 thousands.

Now, 7 thousands – 4 thousands = 3 thousands

Hence, 8532 – 4867 = 3665.

Checking Answer

	3	6	6	5	⇨	Answer
+	4	8	6	7	⇨	Smaller Number
	8	5	3	2	⇨	Greater Number

Thus, the answer is correct.

PROBLEMS ON SUBTRACTION

EXAMPLE : What should be added to 2389 to get 4800 ?

SOLUTION : We have to subtract 2389 from 4800.

$$\begin{array}{r} 4800 \\ -\ 2389 \\ \hline 2411 \end{array}$$

Hence, 2411 should be added to 2389 to get 4800.

EXAMPLE : Find the difference between the largest and the smallest 4-digit numbers formed using the digits 4, 1, 2, 5. Each digit should be used once only.

SOLUTION : The digits are 4, 1, 2, 5.

The largest 4-digit number formed = 5421.

The smallest 4-digit number formed = 1245.

Their difference = 5421 – 1245 = 4176.

$$\begin{array}{rcccc} & 5 & 4 & 2 & 1 \\ - & 1 & 2 & 4 & 5 \\ \hline & 4 & 1 & 7 & 6 \\ \hline \end{array}$$

ADDITION AND SUBTRACTION

EXAMPLE : Solve 2428 + 4253 – 2468 + 3063 – 4620.

SOLUTION :

Here are some numbers which have '+' sign before them or no sign (i.e. first number).

Also, some numbers have '–' sign before them.

Sum of the numbers with '+' sign or no sign before them = 2428 + 4253 + 3063 = 9744.

ADDITION AND SUBTRACTION

Sum of the numbers with '–' sign before them

= 2468 + 4620 = 7088

Now, subtract the second sum from the first sum

So, 9744 – 7088 = 2656

Hence, 2428 + 4253 – 2468 + 3063 – 4620 = 2656.