1 Roman Numbers

Let's Begin

- Roman number system was developed in Ancient Rome.
- Roman number system is another system of writing numbers. It has seven basic symbols.

I	V	X	L	C	D	M
1	5	10	50	100	500	1000

- We can write many numbers by using the different combination of these seven symbols.
- Roman number system has no place value system and has no symbol for 0.

We have learned reading and writing Roman numbers up to 39 in previous class. Let us now read and write roman numbers up to 100.

Rules for Writing Roman Numbers

Rule 1: Repetition of a Roman number symbol means addition. For example, XXX means 30, CC means 200, etc. The symbols V, L and D are never repeated. A symbol can be repeated up to a maximum of three times only.

Rule 2: When we write a smaller Roman number after a greater Roman number, their values are added. For example,

VI = 5 + 1 = 6

XI = 10 + 1 = 11

XXII = 10 + 10 + 1 + 1 = 22

VII = 5 + 1 + 1 = 7

XII = 10 + 1 + 1 = 12

XV = 10 + 5 = 15

XXXVII = 10 + 10 + 10 + 7 = 37

XIII = 10 + 1 + 1 + 1 = 13

VIII = 5 + 1 + 1 + 1 = 8

Rule 3: When we write a smaller Roman number before a greater Roman number, their values are subtracted. For example,

IV = 5 – 1 = 4

IX = 10 – 1 = 9

Rule 4: When a smaller Roman number is placed between two larger Roman numbers then it is always subtracted from the larger number immediately following it. For example,
XIV = 10 + (5 – 1) = 14

Remember!

- Only I, X, C and M can be repeated.
- V, L and D cannot be repeated and cannot be subtracted.
- X can be subtracted from L and C only.
- C can be subtracted from D and M only.

Roman Numbers Up to 100

40	41	42	43	44	45	46	47	48	49	50
XL	XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L
51	52	53	54	55	56	57	58	59	60	
LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	LX	
61	62	63	64	65	66	67	68	69	70	
LXI	LXII	LXIII	LXIV	LXV	LXVI	LXVII	LXVIII	LXIX	LXX	
71	72	73	74	75	76	77	78	79	80	
LXXI	LXXII	LXXIII	LXXIV	LXXV	LXXVI	LXXVII	LXXVIII	LXXIX	LXXX	
81	82	83	84	85	86	87	88	89	90	
LXXXI	LXXXII	LXXXIII	LXXXIV	LXXXV	LXXXVI	LXXXVII	LXXXVIII	LXXXIX	XC	
91	92	93	94	95	96	97	98	99	100	
XCI	XCII	XCIII	XCIV	XCV	XCVI	XCVII	XCVIII	XCIX	C	

EXERCISE 1

1. Write Roman numbers for the following Hindu-Arabic numbers.

(a) 52 _____ (b) 96 _____ (c) 48 _____

(d) 68 _____ (e) 51 _____ (f) 58 _____

(g) 77 _____ (h) 72 _____ (i) 89 _____

(j) 57 _____ (k) 70 _____ (l) 94 _____

2. Write the predecessor of the following.

	Number	Predecessor
(a)	LXX	
(b)	L	
(c)	XL	
(d)	LVI	
(e)	XCIX	

3. Write the successor of the following.

	Number	Successor
(a)	L	
(b)	LXX	
(c)	XLV	
(d)	XLI	
(e)	XC	

4 Arrange the following in ascending order.

(a) XIX, XXI, XV, LXIV

_____

(b) XLI, XXXVI, LXI, XXXVIII

_____

(c) XII, LXIV, XL, LIX

_____

5 Arrange the following in descending order.

(a) X, LIX, XV, XL

_____

(b) LXII, V, LXVI, XL

_____

(c) LXIX, L, XL XLVIII

_____

6 Fill in the blanks.

(a) XL + LI = _____ (b) C – LXX = _____

(c) LIX + VIII = _____ (d) XVI × V = _____

(e) LIV – X = _____ (f) L – XX = _____

7 Which of the following are wrong Roman numbers? Encircle them.

XV IXXX VX XIXX XXXI

XIV IIV IIIX XII

REVIEW EXERCISE

1. The Roman numbers from which I can be subtracted are V and _____. (X/C)

2. 25 in Roman number is written as _____. (XVX/XXV)

3. The Roman number for 89 is written as _____. (LXXXIX/IXC)

4. Write the answers in Roman numbers.

   (a) $5 \times 6 =$ ☐ (b) $8 \times 9 =$ ☐ (c) $60 + 30 =$ ☐

   (d) $780 \div 10 =$ ☐ (e) $80 - 35 =$ ☐ (f) $16 + 5 + 3 =$ ☐

5. Fill in the blanks.

   (a) There are _____ symbols in Roman number system.

   (b) There is no symbol for _____ in Roman number system.

   (c) C can be subtracted from D and _____ only.

ACTIVITY

Objective: To build models of Roman numbers.

Materials Required: Matchsticks, Chart paper, Gum, Notebook

Procedure:

1. Write the Roman numbers in your notebook which you can make using the matchsticks. For example, I, II, III, IV, etc.

2. Take the matchsticks and start making the models of those Roman numbers that you have written in your notebook.

3. Paste your work on the chart paper and get it checked by the teacher.

2 Large Numbers

Let's Begin

- Numbers are used everywhere in our day-to-day life.
- The smallest 4-digit number is 1000 and the largest 4-digit number is 9999.
- The successor of a number is obtained when we add 1 to the given number.
- The predecessor of a number is obtained when we subtract 1 from the given number.

We have learnt the numbers up to 4-digits in the previous class. What happens when we add 1 to the largest 4-digit number?

	TTh	Th	H	T	O
		9	9	9	9
+					1
	1	0	0	0	0

The number we get is 10000 read as ten-thousand. In the place value chart the fifth place from right is called the ten-thousands place. Hence, the 5-digit numbers start from 10000 and go up to 99999. The smallest 5-digit number is 10000.

The largest 5-digit number is 99999.

The number 1 more than 99999 is

	L	TTh	Th	H	T	O
		9	9	9	9	9
+						1
	1	0	0	0	0	0

The number we get is 6-digit number, that is 100000 and read as One-lakh.

In the place value chart the sixth place from the right is called Lakh. Hence, the 6-digit numbers start from 100000 and go up to 999999.

The largest 6-digit number is 999999.

1 more than 999999 is 1000000 read as ten lakhs.

In the place value chart, the seventh place from the right is called ten-lakhs. Hence, the 7-digit numbers start from 1000000 and go up to 9999999.

The largest 7-digit number is 9999999 and read as ninety nine lakh ninety nine thousand nine hundred ninety nine.

Periods

For reading the large numbers easily, we separate the digits of the number into groups called periods. The first three digits of a number from the right form the ones period the next two digits form the thousands period followed by two digits that form lakhs period.

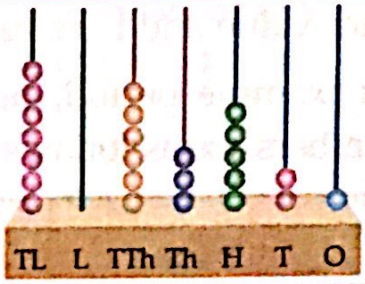
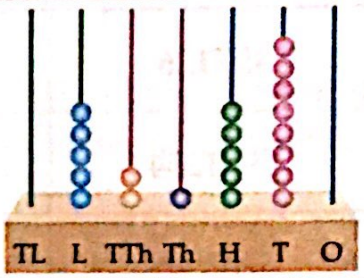
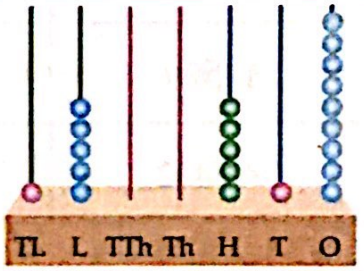
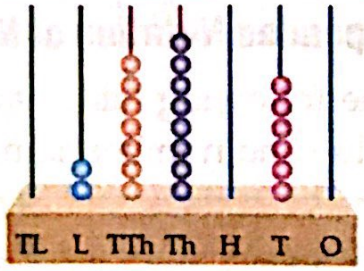
Look at the examples given below that will help you learn how to read 6-digit numbers.

Period / Number	Lakhs		Thousands		Ones		
	Ten lakhs	Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
756528	0	7	5	6	5	2	8

We use commas to separate the periods.

The number 756528 is written as 7,56,528 and is read as seven lakh fifty-six thousand five hundred twenty eight.

Look at the table which represents some large numbers in the place value chart along with their representation on abacus.

Numbers	TL	L	TTh	Th	H	T	O	Abacus
70,63,521	7	0	6	3	5	2	1	
5,21,580		5	2	1	5	8	0	
15,00,519	1	5	0	0	5	1	9	
2,78,060		2	7	8	0	6	0	

Remember!

- The place value system is separated into three periods.
- The ones period has three places—**hundreds, tens and ones.**
- The thousands period has two places—**ten thousands and thousands.**
- The lakhs period has two places—**ten lakhs and lakhs.**

Place Value and Face Value

Place value of a digit = Face value of the digit × Value of the place.

Face value of a digit in a number is the digit itself.

Place value and Face value of 0 is always 0, wherever it may be.

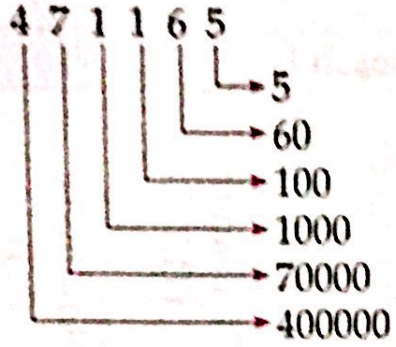
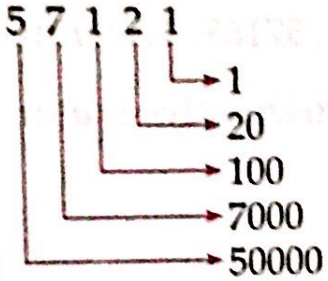
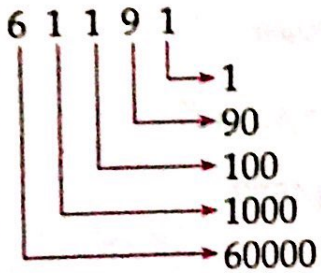
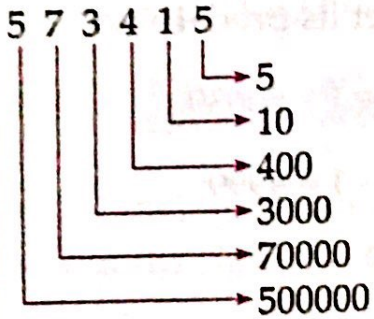
For example, period, the place value and face value of digit 5 in each of the following numbers are as follows.

Number	Period of 5	Place value of 5	Face value of 5
457126	Thousands	50000	5
5971234	Lakhs	5000000	5
70154	Ones	50	5
14576	Ones	500	5
995432	Thousands	5000	5

Expanded Notation of Numbers

The following table shows the expanded notation of numbers along with place value and number name.

Numbers	Place value	Expanded notation	Number Name
3,92,000	3 9 2 0 0 0 0 0 0 2000 90000 300000	300000 + 90000 + 2000	Three lakh ninety two thousand

4,71,165		400000 + 70000 + 1000 + 100 + 60 + 5	Four lakh seventy-one thousand one hundred sixty five
57,121		50000 + 7000 + 100 + 20 + 1	Fifty-seven thousand one hundred twenty one
61,191		60000 + 1000 + 100 + 90 + 1	Sixty-one thousand one hundred ninety one
5,73,415		500000 + 70000 + 3000 + 400 + 10 + 5	Five lakh seventy three thousand four hundred fifteen

International Place Value System

Periods	Millions			Thousands			Ones		
Place	Hundred millions (HM)	Ten millions (TM)	Millions (M)	Hundred Thousands (HTh)	Ten Thousands (TTh)	Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)

For example, in the International place value system, 5716513 is written as 5,716,513.

It is read as five million seven hundred sixteen thousand five hundred thirteen.

Successor and Predecessor of a Number

Successor of a number

The successor of a number is 1 more than the number.

So, we have to add 1 to the number to get its successor.

For example, Successor of 457126 is : 457126 + 1 = 457127

Successor of 14576 is : 14576 + 1 = 14577

Predecessor of a number

The predecessor of a number is 1 less than the number.

So, we have to subtract 1 from the number to get its predecessor.

For example, Predecessor of 50640 is : 50640 – 1 = 50639

Predecessor of 10000 is : 10000 – 1 = 9999

Let's Try

Example 1: Represent 53846 on the place value chart and write it using commas. Also write its number name.

Solution:

Thousands		Ones		
TTh	Th	H	T	O
5	3	8	4	6

53846 is written as 53,846 and its number name is Fifty-three thousand eight hundred forty six.

Example 2: Write the place value of each digit of 2473451. Also write its expanded form.

Solution:

TL	L	TTh	Th	H	T	O
2	4	7	3	4	5	1

Place value of 1 = 1 one = 1
Place value of 5 = 5 tens = 50
Place value of 4 = 4 hundreds = 400
Place value of 3 = 3 thousands = 3,000
Place value of 7 = 7 ten thousands = 70,000
Place value of 4 = 4 lakhs = 4,00,000
Place value of 2 = 2 ten lakhs = 20,00,000

The expanded form of 24,73,451 is 2 ten lakhs + 4 lakhs + 7 ten thousands + 3 thousands + 4 hundreds + 5 tens + 1 one

Or

20,00,000 + 4,00,000 + 70,000 + 3, 000 + 400 + 50 + 1

Example 3: Find the predecessor and successor of 235432.
Solution: Predecessor of 235432 = 235432 – 1 = 235431
Successor of 235432 = 235432 + 1 = 235433

EXERCISE 2A

1. Arrange the following numbers in Indian place value chart and rewrite them with commas at the right places.

(a) 8070 (b) 90103 (c) 45678 (d) 327891
(e) 2015389 (f) 617056 (g) 3548009 (h) 7560034

2 Write in words (according to Indian and International place value system)

(a) 508576 (b) 9708134 (c) 200200

(d) 6666666 (e) 560001 (f) 576016

3 Write the following in figures.

(a) Forty seven thousand four hundred sixty three.

(b) Six lakh twenty.

(c) Seventy four lakh eighty three thousand nine hundred sixty four.

(d) Ten million nine hundred eight thousand four hundred fifty five.

(e) Sixty one million three hundred two thousand six.

(f) Seven lakh thirty seven.

4 Find the place value of the underlined digit in each of the following.

(a) $\underline{7}652408$ (b) $8\underline{3}10596$ (c) $435\underline{9}81$ (d) $260\underline{3}04$

(e) $98\underline{9}8413$ (f) $\underline{5}213680$ (g) $61\underline{2}489$ (h) $108\underline{9}1$

5 Find the difference between the place value and face value of 7 in 371859.

6 Find the difference between the place value of 7 and 2 in the number 5703268.

7 Find the difference between the place value of 6 in 4896300 and 1580635.

8 Write each of the following in expanded form.

(a) 84395 (b) 329010 (c) 223567 (d) 1680403

(e) 5981276 (f) 9060317 (g) 4278150 (h) 1020304

9 Write the following in short form.

(a) 90000 + 6000 + 40 + 3 (b) 300000 + 7000 + 100 + 7

(c) 800000 + 900 + 60 + 4 (d) 70000 + 1

(e) 600000 + 70000 + 3000 + 40 + 9 (f) 400000 + 50000 + 6000 + 700 + 7

10 Write the successor of the following numbers.

(a) 83009 (b) 3599999 (c) 120000

(d) 7841260 (e) 29099 (f) 9999399

11 Write the predecessor of the following numbers.

(a) 20791 (b) 68099 (c) 7824000

(d) 989412 (e) 6631700 (f) 407000

Comparison of Numbers

To find the greater or smaller number we follow these steps:

- If number of digits in two numbers are different then number with more digits is greater.
- If number of digits in two numbers are same then:

  (i) To compare numbers, compare their digits from left to right, that is, from the highest place value to ones.

  (ii) If the digits at a place are equal, compare the digits at the next place on the right. For example,

Let us compare 43084 and 47305.

TTh	Th	H	T	O
4	3	0	8	4
4	7	3	0	5

4 = 4

3 < 7

Thus, 43084 < 47305

Let us compare 647924 and 647812.

L	TTh	Th	H	T	O
6	4	7	9	2	4
6	4	7	8	1	2

6 = 6

4 = 4

7 = 7

9 > 8

Thus, 647924 > 647812

Ascending order and Descending order

We can arrange a set of numbers in ascending order or in descending order by using the concept of comparing numbers. Ascending order means arranging numbers from the smallest to the biggest. Descending order means arranging numbers from the biggest to the smallest.

Remember!

- Numbers with lesser digits are smaller.
- Numbers with more digits are larger.
- To compare numbers with equal digits, compare the digits from left to right.

Making the Smallest and the Largest Number using the given Digits only once

- To make the smallest number, write the smallest digit at highest place and then next smallest digit at next highest place and so on. For example, if given digits are 3, 4, 7, 9 and 2 then the smallest number will be 23479.
- If 0 is given as one of the digits, then put '0' in the second highest place to form the smallest number. For example, if given digits are 6, 0, 8, 3, 4, and 1 then the smallest number so formed will be 103468.
- To make the largest number, write the largest digit at highest place and then the second largest digit at the second highest place and so on. 0 always gets the ones place. For example, if given digits are 7, 8, 4, 0, 9 and 6 then the largest number formed will be 987640.

Let's Try

Example 1: Arrange the following numbers in descending order.

35683, 24719, 8421053, 1101690, 286

Solution: Since 8421053 and 1101690 have same number of digits, we compare them first.

8421053 > 1101690

Similarly, 35683 and 24719 have same number of digits, we compare them next.

35683 > 24719

Thus, the order is 8421053 > 1101690 > 35683 > 24719 > 286

Example 2: Arrange the following numbers in ascending order.

69, 5375, 4307652, 1810912, 70000.

Solution: Following the same method, we get as:

69 < 5375 < 70000 < 1810912 < 4307652

Example 3: Write the smallest 6-digit number using all the digits 5, 6, 1, 2, 0, 3.

Solution: By writing the smallest digits at higher places we get the smallest number as 102356.

EXERCISE 2B

1. Write appropriate sign >, < or = in the circle.

(a) 68477 ◯ 68470 (b) 123496 ◯ 93241

(c) 7360005 ◯ 7360008 (d) 8080800 ◯ 8080899

(e) 643593 ◯ 634953 (f) 270900 ◯ 27090

(g) 368012 ◯ 368012 (h) 8500373 ◯ 8501373

2. Pick and write the smallest and the largest number from each of the following.

(a) 838812, 647921, 800042, 298001, 498001

(b) 972300, 6432136, 2412133, 845250, 63842

(c) 3030984, 9090384, 8080394, 4040983, 8090349

3. Write the following numbers in ascending order.

(a) 62372, 236728, 803982, 62732, 893820

(b) 8100000, 6010000, 9010000, 5100000, 6100000

(c) 3131314, 3131413, 3131431, 3131134, 3131341

(d) 684, 45100, 9802, 89999, 1020012

(e) 450063, 450036, 453600, 453060, 453006

4. Write the following numbers in descending order.
   (a) 3236400, 2024294, 1620402, 80800, 812610
   (b) 790001, 7800000, 500900, 9000500, 909990
   (c) 6974, 42149, 387562, 6640951, 3417259
   (d) 589908, 6353214, 2142986, 8624137, 6481602
   (e) 828272, 728272, 828227, 7282882, 8272772

5. Make the largest and the smallest number using all the given digits.
   (a) 3, 2, 1, 0, 4, 6 (b) 6, 8, 2, 3, 4, 9 (c) 5, 0, 1, 2, 8, 4
   (d) 9, 6, 8, 0, 3, 1, 2 (e) 4, 5, 7, 8, 3, 6, 2 (f) 7, 2, 1, 4, 8, 9, 0

6. Write all the possible numbers using digits 4, 1, 3 and 9 with 9 at thousands place.

7. Write the largest and the smallest number using all the digits 6, 3, 4, 7 and 5. Find the difference between the place value of 4 in both the numbers.

REVIEW EXERCISE

1. Write the following in numbers.
   (a) Eight lakh forty-nine thousand four hundred sixteen.
   (b) Sixty-seven lakh thirty-eight thousand seventy.

2. Find the sum of place value of 3 and 7 in 8345791.

3. Write the successor of the greatest 5-digit number.

4. Arrange the following in ascending order.
   (a) 2365418, 3265814, 2536841, 2563481, 2345681
   (b) 7070777, 7007777, 7007077, 7707070, 7007070

5. Arrange the following in descending order.
   (a) 4765302, 4756023, 4570236, 4702356, 4023756
   (b) 2992929, 9292929, 9999222, 2929292, 2222999

ACTIVITY

Objective: To enhance the number making skills.

Materials Required: A bowl, paper slips with digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 written on each.

Procedure:

1. The teacher will divide the class into groups of 5 and give a set of paper slips to each group in a bowl.

2. Each student in the group will pick up one slip from the bowl and will make the largest and smallest 5-digit number. For example, the students of a group pick 3, 8, 7, 4 and 5. Then the smallest number will be 34578 and the largest number will be 87543.

3. All students of the group will write down the largest and smallest 5-digit numbers so formed in their notebooks and get checked by the teacher.

4. All the groups will repeat the same activity.

3 Addition and Subtraction

Let's Begin

- When we add two or more numbers, then each number is known as addendum (plural addend) and the result obtained after addition is called the sum.
- In subtraction, the larger number is called minuend, the number which is subtracted is called subtrahend and the result of subtraction is called the difference.
- We always subtract the smaller number from the bigger number.

Addition without Carrying

The rule to add large numbers is same as that for 4-digit numbers. To add the large numbers, arrange the numbers in columns and then add starting from ones place by moving towards the left. Let us learn through examples.

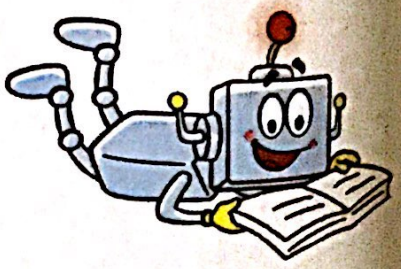
Let's Try

Example 1: Add 61324 and 23245.

Solution: Arrange the given addends in columns and then add.

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

Hence, the sum is 84569.



Example 2: Find the sum of 11340, 67235, 1003 and 21.

Solution: Arrange the addends in columns and then add.

	TTh	Th	H	T	O
	1	1	3	4	0
	6	7	2	3	5
		1	0	0	3
+				2	1
	7	9	5	9	9

Hence, the sum is 79599.

Addition with Carrying

As we carry over in the sum of 4-digit numbers, larger numbers also follow the same rule. Let us learn through examples.

Let's Try

Example 1: Add 27385 and 56428.

Solution: Arrange the addends in columns and then add.

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

Hence, the sum is 83813.

Example 2: Add 567, 8901, 23645 and 78902.

Solution: Arrange the addends in columns and then add.

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

Hence, the sum is 112015.

EXERCISE 3A

1 Add the following.

(a)

	TTh	Th	H	T	O
	2	3	4	7	5
+	1	2	3	2	4

(b)

	TTh	Th	H	T	O
	6	8	0	2	4
+	2	1	7	3	4

(c)

	TTh	Th	H	T	O
	3	2	8	9	0
+	4	3	1	0	6

(d)

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

(e)

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

(f)

	TTh	Th	H	T	O
	2	4	8	0	1
		3	6	0	4
+	1	2	8	9	2

(g)

	TTh	Th	H	T	O
	5	8	6	7	2
		1	0	3	6
+	2	2	5	2	4

(h)

	L	TTh	Th	H	T	O
	1	2	3	4	5	6
	5	4	3	2	6	1
+		5	1	2	3	4

(i)

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

(j)

	TTh	Th	H	T	O
		9	1	6	0
	1	2	3	4	7
+	6	2	4	0	0

(k)

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

(l)

	L	TTh	Th	H	T	O
	9	0	0	0	0	0
		8	0	0	0	0
			6	0	0	0
+					2	3

2 Add the following.

(a) 63417, 98001 and 23495

(b) 322478, 13980 and 624717

(c) 123456, 28497 and 930

(d) 1875, 6234, 9091 and 2348176

Properties of Addition

Let us learn the properties of addition

1. The sum of two numbers remains the same even if we change the order of the numbers.

   For example, let us add 13,816 and 2,458

   13,816 + 2,458 = 16,274

   2,458 + 13,816 = 16,274

   Thus, 13,816 + 2,458 = 2,458 + 13,816

2. When adding three or more numbers the numbers can be grouped in any way. The sum remains the same in all cases.

   For example, let us add 2,367; 43,787 and 24,786

   (2,367 + 43,787) + 24,786 = 46,154 + 24,786 = 70,940

   (2,367 + 24,786) + 43,787 = 27,153 + 43,787 = 70,940

   2,367 + (43,787 + 24,786) = 2,367 + 68,573 = 70,940

   Thus, (2,367 + 43,787) + 24,786 = (2,367 + 24,786) + 43,787

   = 2,367 + (43,787 +24,786)

3. When we add zero to a number the sum is always the number itself.

   For example, 53,276 + 0 = 53,276 4,53,243 + 0 = 4,53,243

4. When we add 1 to a number the sum is the successor of the number.

   For example, 59,847 + 1 = 59,848 64,357 + 1 = 64,358

5. When we add 10 to a number, the digit in the tens place is increased by 1.

   For example, 37,673 + 10 = 37,683 2,33,456 + 10 = 2,33,466

6. When we add 100 to a number the digit in the hundreds place is increased by 1.

   For example, 13,567 + 100 = 13,667 2,43,456 + 100 = 2,43,556

7. When we add 1000 to a number, the digit in thousands place is increased by 1.

   For example, 38,380 + 1000 = 39,380 2,34,567 + 1000 = 2,35,567

EXERCISE 3B

1. Fill in the blanks.

   (a) 356288 + 1 = _____

   (b) 358937 + 10 = _____

   (c) 564456 + 100 = _____

   (d) 63888 + 0 = _____

   (e) 635494 + 1000 = _____

2. Add the following pairs and compare their sum.

   (a) 33560 + 678336 and 678336 + 33560

   (b) 957688 + 348964 and 348964 + 957688

   (c) 43543 + 16253 and 16253 + 43543

   (d) 657678 + 78689 + 34356 and 78689 + 657678 + 34356

   (e) 3454 + 85476 + 345672 and 85476 + 3454 + 345672

Subtraction without Borrowing

The rule to subtract large numbers is same as that for 4-digit numbers. To subtract the large numbers arrange the numbers in columns and then subtract starting from the ones place by moving towards the left. Let us learn through examples.

Let's Try

Example 1: Subtract 15620 from 37892.

Solution: Arrange the numbers in columns and then subtract.

	TTh	Th	H	T	O
	3	7	8	9	2
−	1	5	6	2	0
	2	2	2	7	2

Hence, the difference is 22272.

Example 2: Subtract 274032 from 796345.

Solution: Arrange the numbers in columns and then subtract.

	L	TTh	Th	H	T	O
	7	9	6	3	4	5
−	2	7	4	0	3	2
	5	2	2	3	1	3

Hence, the difference is 522313.

Subtraction with Borrowing

We already know how to regroup by borrowing for 4-digit numbers. Follow the same rule for the subtraction of 5-digit and 6-digit numbers as explained here.

Let's Try

Example 1: Subtract 23286 from 65314.

Solution:

	TTh	Th	H	T	O
			(2)	(10)	(14)
	6	5	~~3~~	~~1~~	~~4~~
−	2	3	2	8	6
	4	2	0	2	8

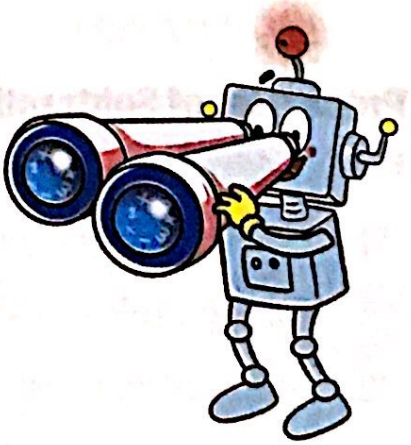
Hence, the difference is 42028.

Example 2: Subtract 428304 from 431250.

Solution:

	L	TTh	Th	H	T	O
		(2)	(10)	(12)	(4)	(10)
	4	~~3~~	~~1~~	~~2~~	~~5~~	~~0~~
−	4	2	8	3	0	4
	0	0	2	9	4	6

Hence, the difference is 2946.



Exercise 3C

1. Subtract the following.

(a)

	TTh	Th	H	T	O
	8	1	2	4	9
−	2	0	1	3	7

(b)

	TTh	Th	H	T	O
	2	4	6	8	2
−	1	3	4	7	1

(c)

	L	TTh	Th	H	T	O
	9	5	7	3	4	8
−	3	2	6	2	1	7

(d)

	L	TTh	Th	H	T	O
	7	0	8	5	6	4
−	6	0	2	3	2	1

(e)

	L	TTh	Th	H	T	O
	3	5	1	7	0	0
−			6	2	4	8

(f)

	L	TTh	Th	H	T	O
	4	3	2	1	7	0
−	3	4	2	8	1	9

(g)

	L	TTh	Th	H	T	O
	3	9	2	6	4	7
−	1	8	6	2	5	1

(h)

	L	TTh	Th	H	T	O
	8	9	8	9	3	4
−	5	6	4	3	1	8

(i)

	L	TTh	Th	H	T	O
	7	2	5	7	0	4
−		1	9	8	3	4

2 Subtract the following.

(a) 984715 – 6280

(b) 9898324 – 232374

(c) 502501 – 980

(d) 600000 – 68329

3 Arrange the following in columns and then subtract.

(a) Subtract five lakh sixty three thousand eight from Ten lakh forty six thousand three hundred two.

(b) If the minuend is 68,321 and the subtrahend is 39,634, find the difference.

(c) If the subtrahend is 98,421 and the minuend is 5 lakhs, find the difference.

Properties of Subtraction

Let us learn the properties of subtraction.

1. The order of numbers in a subtraction cannot be changed.

   For example, 24,643 – 256 = 24,387 is not the same as 256 – 24,643.

2. Subtracting a number from itself gives a difference 0.

   For example, 59,848 – 59,848 = 0

3. When we subtract zero from a number, the difference is the number itself.

   For example, 54,468 – 0 = 54,468

4. When we subtract 1 from a number, the difference is the predecessor of the number.

   For example, 76,583 – 1 = 76,582

5. When we subtract 10 from a number, the digit in the tens place is decreased by 1.

   For example, 68,435 – 10 = 68,425

6. When we subtract 100 from a number, the digit in the hundreds place is decreased by 1.

   For example, 3,45,675 – 100 = 3,45,575

7. When we subtract 1000 from a number, the digit in the thousands place is decreased by 1.

   For example, 8,54,364 – 1000 = 8,53,364

EXERCISE 3D

1 Fill in the blanks.

(a) 48580 – 1 = _____

(b) 57680 – 10 = _____

(c) 58600 – 100 = _____

(d) 864456 – 0 = _____

(e) 73456 – 73456 = _____

(f) 978684 – 1000 = _____

2 Find the subtrahend in the following.

(a) 34567 – ☐ = 34557

(b) 756398 – ☐ = 756397

(c) 998694 – ☐ = 998694

(d) 12345 – ☐ = 11345

(e) 900000 – ☐ = 899990

Word Problems

Let's Try

Example 1: A factory produced 76325 garments in January and 92000 in February. How many garments were produced in these two months?

5. When we subtract 10 from a number, the digit in the tens place is decreased by 1.

   For example, 68,435 – 10 = 68,425

6. When we subtract 100 from a number, the digit in the hundreds place is decreased by 1.

   For example, 3,45,675 – 100 = 3,45,575

7. When we subtract 1000 from a number, the digit in the thousands place is decreased by 1.

   For example, 8,54,364 – 1000 = 8,53,364

EXERCISE 3D

1 Fill in the blanks.

(a) 48580 – 1 = _____

(b) 57680 – 10 = _____

(c) 58600 – 100 = _____

(d) 864456 – 0 = _____

(e) 73456 – 73456 = _____

(f) 978684 – 1000 = _____

2 Find the subtrahend in the following.

(a) 34567 – ☐ = 34557

(b) 756398 – ☐ = 756397

(c) 998694 – ☐ = 998694

(d) 12345 – ☐ = 11345

(e) 900000 – ☐ = 899990

Word Problems

Let's Try

Example 1: A factory produced 76325 garments in January and 92000 in February. How many garments were produced in these two months?

Solution:

Number of garments produced in January	=	76325
Number of garments produced in February	= +	92000
Total garments produced	=	168325

Hence, the total garments produced are 168325.

Example 2: A builder had 642700 kg of cement. After a month 315000 kg of cement was used up. How much quantity of cement is left now?

Solution:

Quantity of cement he had initially	=	6 4 2 7 0 0 kg
Quantity of cement used	=	– 3 1 5 0 0 0 kg
Thus, quantity of cement left	=	3 2 7 7 0 0 kg

Hence, 327700 kg of cement is left now.

EXERCISE 3E

1. A website on google had 595760 visitors in January 2014 and 714835 in February 2014. How many visitors were there in total?

2. A factory made 287560 TV sets in the year 2013. If 7832 sets were made in the month of December, how many sets were made till November?

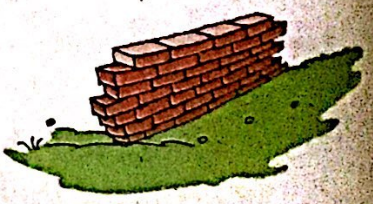
3. In a dancing competition Ruhi won by 83,999 votes and Ronit came second. If Ruhi got 4,36,550 votes, how many votes did Ronit get?

4. If the population of a town increases by 26,793 then it will become five lakhs. What is its population now?

5. Sona had ₹ 9,25,100. After she bought a vehicle, she had ₹ 69,340 left. What was the cost of the vehicle?

6. By how much is 1,33,671 greater than the sum of 45,385 and 82,355?

7. A man had 15,600 bricks. He used 12,345 bricks to make a house and 392 bricks to build a well. How many bricks are left now?



8. The difference between two numbers is 35708. If the greater of the numbers is 87732, find their sum.

9. In an election, there were four candidates. They received 89278, 34967, 8247 and 976 votes respectively. If 1984 votes were found invalid, how many votes in all were cast?

10. The price of a car is ₹ 486798 and that of a van is ₹ 300980. Which costs more and by how much?

11. From an electric cable 40000 m long, two pieces measuring 9845 m and 7834 m were used. Find the length of the remaining cable.

12. A milk dairy produced 83500 litres of milk. It supplied 34890 litres to one town and 14785 litres to another town. How much milk is left in the dairy now?

REVIEW EXERCISE

1. Find the number which is:

   (a) 700 more than 28630 (b) 300 less than 10387

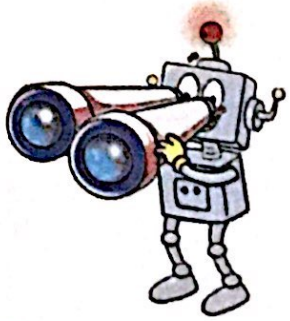
2. What must be subtracted from 50000 to get 37261?

3. Add the following.

   (a) 24753, 15632 and 23524 (b) 156323, 23456 and 1352

4. Subtract the following.

   (a) 873613 – 5170 (b) 700000 – 57238



5. Fill in the blanks.

   (a) 453642 – 1 = _____ (b) 245689 + 0 = _____

   (c) 24568 + 1000 = _____ (d) 89735 – 100 = _____

ACTIVITY

Objective: To build an understanding of concept for mental addition.

Materials Required: Bottle caps

Procedure:

Let us solve **8 + 12** using 2 as the compensatory figure.

This activity will be carried out in pairs.

1. One student of the pair will place 8 green bottle caps as shown.

2. The partner will place 12 blue bottle caps below the 8 bottle caps.

3. The first student then finds the total number of bottle caps, that is, 8 + 12 = 20.

$$\begin{array}{r} 8 \\ +\ 1\ 2 \\ \hline 2\ 0 \end{array}$$

4. The partner will now shift 2 blue bottle caps to the first row.
5. The student again finds the total number of bottle caps, that is, 10 + 10 = 20.