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1



The Number System



Learning Objectives

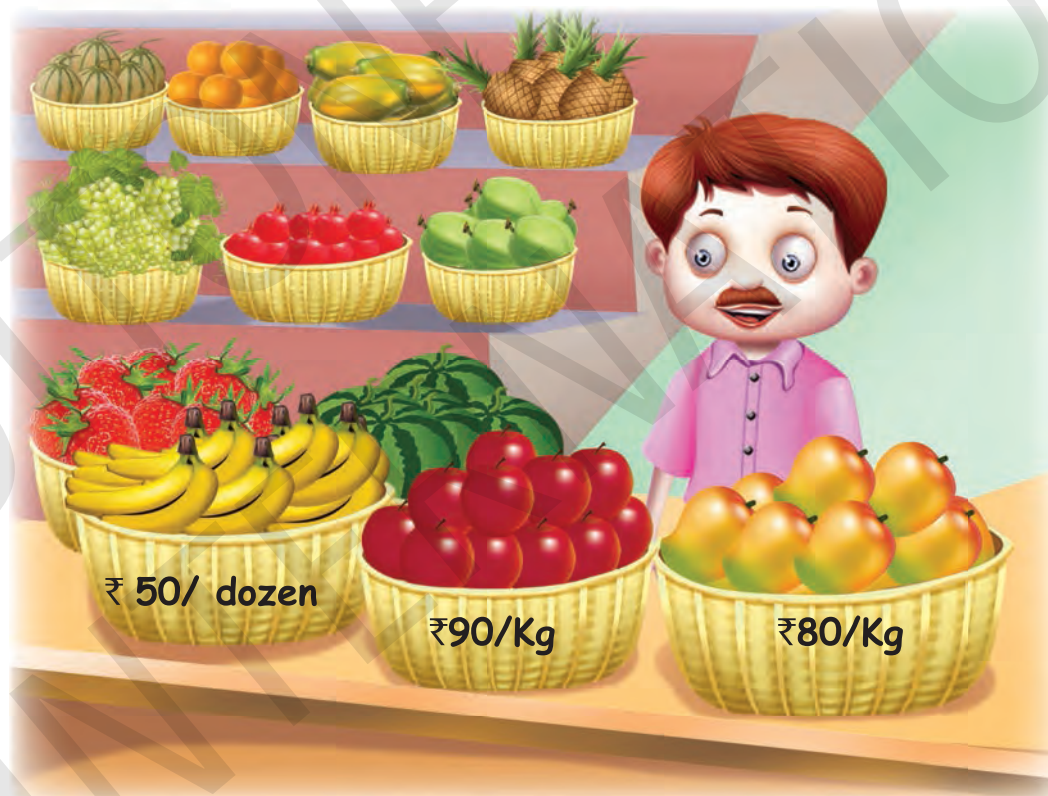
By the end of this lesson, students will be able to:

- Know the successor and predecessor of a number.
- Arrange numbers in ascending and descending order.
- Form numbers.
- Tell the face and place value of a digit.



Warm-Up

Observe the following picture and answer the following questions.



1. What is the price of half Kg apple? _____
2. Find the cost of 3 dozen bananas? _____
3. Arrange the price of fruits in ascending order. _____





In class III, we have learnt upto 4-digit numbers. Now study further.

Extension of Numbers

Numbers	Smallest	Largest
4-digit	1000 (One Thousand)	9999
5-digit	10000 (Ten Thousand)	99999
6-digit	100000 (One Lakh)	999999
7-digit	1000000 (Ten Lakh)	9999999

Number system helps us to find out the place value of each digit in a numeral according to its position.



Indian Number System

Indian number system is based on **Hindu-Arabic** numeration. Thus, it is also known as **Hindu-Arabic number system**.



Place value chart of Indian Number System is shown below:

LAKHS		THOUSANDS		ONES		
TL	L	T-TH	TH	H	T	O
TEN LAKHS 10,00,000	LAKHS 1,00,000	TEN THOUSANDS 10,000	THOUSANDS 1,000	HUNDREDS 100	TENS 10	ONES 1

The first three places from the right are marked with **ONES**.

The next two places are marked with **THOUSANDS**.

The next to next two places are marked with **LAKHS**.



International Number System

International number system is used by many countries in the world.

In this system, we use 1 lakhs = 100 thousands
10 lakhs = 1 million



Place value chart of International Number System is shown below:

MILLIONS			THOUSANDS			ONES		
HM	TM	M	H-TH	T-TH	TH	H	T	O
HUNDRED MILLIONS 100,000,000	TEN MILLIONS 10,000,000	MILLIONS 1,000,000	HUNDRED THOUSANDS 100,000	TEN THOUSANDS 10,000	THOUSANDS 1,000	HUNDREDS 100	TENS 10	ONES 1





Quick Tip

In the International numeral system, we begin from the right side and insert commas after every three digits.

The first three places from the right are marked with **ONES**.

The next three places are marked with **THOUSANDS**.

The next to next three places are marked with **MILLIONS**.



Reading a Numeral

Do not use the word 'and' before tens and ones.

For example, 7486 **should not** be read as Seven thousand four hundred and eighty-six. It **can be read as**, Seven thousand four hundred eighty six.



Writing a Numeral

Do not write in plural form.

For example, 2754 should never be written as two thousands seven hundreds fifty four. It can be written as, Two thousand seven hundred fifty four.

Solved Examples

Example 1 : Write each of the following numerals in the Indian number system using commas:

(a) 91265

(b) 345642

(c) 7392105

(d) 8123987

(e) 889016



Solution : Indian Number System

	TL	L	T-TH	TH	H	T	O	Using Commas
(a)			9	1	2	6	5	91,265
(b)		3	4	5	6	4	2	3,45,642
(c)	7	3	9	2	1	0	5	73,92,105
(d)	8	1	2	3	9	8	7	81,23,987
(e)		8	8	9	0	1	6	8,89,016

Example 2 : Write number names for each of the following numerals in the Indian number system:

(a) 64509

(b) 543290

(c) 732100

(d) 2345689

(e) 9734007



Solution : Indian Number System

	TL	L	T-Th	Th	H	T	O	Number Name
(a)			6	4	5	0	9	Sixty four thousand five hundred nine.
(b)		5	4	3	2	9	0	Five lakh forty three thousand two hundred ninety.
(c)		7	3	2	1	0	0	Seven lakh thirty two thousand one hundred.
(d)	2	3	4	5	6	8	9	Twenty three lakh forty five thousand six hundred eighty nine.
(e)	9	7	3	4	0	0	7	Ninety seven lakh thirty four thousand seven.



Example 3 : Write each of the following numerals in the International number system using commas:

- (a) 46529 (b) 5764028 (c) 912346
 (d) 21903487 (e) 412357698

Solution : International Number System

	HM	TM	M	H-Th	T-Th	Th	H	T	O	Using Commas
(a)					4	6	5	2	9	46,529
(b)			5	7	6	4	0	2	8	5,764,028
(c)				9	1	2	3	4	6	912,346
(d)		2	1	9	0	3	4	8	7	21,903,487
(e)	4	1	2	3	5	7	6	9	8	412,357,698

Example 4 : Write number names for each of the following numerals in the International number system:

- (a) 764295 (b) 6421029
 (c) 43528692 (d) 736145208 (e) 148009562

Solution : International Number System

	HM	TM	M	H-Th	T-Th	Th	H	T	O	Using Commas
(a)				7	6	4	2	9	5	Seven hundred sixty four thousand two hundred ninety five.
(b)		6		4	2	1	0	2	9	Six million four hundred twenty one thousand twenty nine.
(c)	4	3		5	2	8	6	9	2	Forty three million five hundred twenty eight thousand six hundred ninety two.



(d)	7 3 6	1 4 5	2 0 8	Seven hundred thirty six million one hundred forty five thousand two hundred eight.
(e)	1 4 8	0 0 9	5 6 2	One hundred forty eight million nine thousand five hundred sixty two.

Exercise 1.1

1. Write each of the following numerals in the Indian number system using commas:

(a) 12596	(b) 731259	(c) 7362487
(d) 4123657	(e) 435962	(f) 1043521
2. Write each of the following numerals in the International number system using commas:

(a) 913546	(b) 3126708	(c) 47326580
(d) 149625983	(e) 721482500	(f) 83456210
3. Write the number names for each of the following numerals in the Hindu-Arabic number system:

(a) 17309	(b) 452086	(c) 7312829
(d) 4359800	(e) 980026	(f) 421053
4. Write the number names for each of the following numerals in the International number system:

(a) 436542	(b) 7348967	(c) 89456240
(d) 92389628	(e) 730089286	(f) 102598
5. Write the following number names in figures in the Hindu-Arabic number system, using proper commas:
 - (a) Fourteen lakh two thousand seventy three.
 - (b) Thirty two lakh nine thousand twenty.
 - (c) Fifty lakh eleven thousand.
 - (d) One lakh three hundred six.
 - (e) Eighty three lakh twenty one thousand four hundred nine.



6. Write the following number names in figures in the International number system, using proper commas:

- (a) One million twenty three thousand four hundred six.
- (b) Twelve million one hundred fifty thousand ninety eight.
- (c) Sixty two million three hundred eleven thousand one hundred.
- (d) Ten million fifty thousand eighty.
- (e) Six million two thousand one hundred nine.



Face Value And Place Value of A Digit



Face Value of a digit in a numeral is the value of the digit itself.

Example 1 : Let the numeral be 205679

In the above numeral,

Face value of 9 is 9

Face value of 7 is 7

Face value of 6 is 6

Face value of 5 is 5

Face value of 0 is 0

Face value of 2 is 2

Example 2 : Let the numeral be 4258615

In the above numeral,

Face value of 5 is 5

Face value of 1 is 1

Face value of 6 is 6

Face value of 8 is 8

Face value of 5 is 5



Facts to Know

Aryabhata of Kusumapura developed the place-value notation in the 5th century and a century later Brahmagupta introduced the symbol for zero.



Face value of 2 is 2

Face value of 4 is 4

Place value (or local value) of a digit in a numeral depends upon the value according to the place of a digit in a number.

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

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



Example 3 : Let the numeral be: 79,64,208

In the above numeral,

TL	L	T-Th	Th	H	T	O
7	9	6	4	2	0	8

Place value of 8 = 8 ones = 8×1 = 8
Place value of 0 = 0 tens = 0×10 = 0
Place value of 2 = 2 hundreds = 2×100 = 200
Place value of 4 = 4 thousands = $4 \times 1,000$ = 4,000
Place value of 6 = 6 ten thousands = $6 \times 10,000$ = 60,000
Place value of 9 = 9 lakhs = $9 \times 1,00,000$ = 9,00,000
Place value of 7 = 7 ten lakhs = $7 \times 10,00,000$ = 70,00,000

Example 4 : Let the numeral be: 43,58,620

In the above numeral,

TL	L	T-Th	Th	H	T	O
4	3	5	8	6	2	0

Place value of 0 = 0 ones = 0×0 = 0
Place value of 2 = 2 tens = 2×10 = 20



Place value of 6 = 6 hundreds	= 6×100	= 600
Place value of 8 = 8 thousands	= $8 \times 1,000$	= 8,000
Place value of 5 = 5 ten thousands	= $5 \times 10,000$	= 50,000
Place value of 3 = 3 lakhs	= $3 \times 1,00,000$	= 3,00,000
Place value of 4 = 4 ten lakhs	= $4 \times 10,00,000$	= 40,00,000

Exercise 1.2

1. Write the face value of encircled digits:

(a) 2 5 6 **(2)** 9

(b) 7 3 4 2 6 **(7)**

(c) 8 **(9)** 7 0 4 6 3

(d) 4 8 **(0)** 9 2 7 4

(e) **(7)** 3 9 5 6 2

(f) 1 0 4 0 **(5)** 0 9 7

(g) 2 3 4 7 **(8)** 2

(h) **(9)** 8 4 0 1 2 7 8

2. Write the place value of encircled digits:

(a) 9 8 7 **(6)** 4 2

(b) 4 **(1)** 0 0 2 7

(c) **(9)** 3 6 4 2 8 0

(d) 8 3 4 **(0)** 6 2 8

(e) 2 0 3 0 5 6 **(9)**

(f) 1 7 3 **(2)** 5 9 2

(g) 8 **(3)** 4 0 5 6 7

(h) 7 6 4 **(2)** 5 9



Expansion of Numbers

When a numeral is expressed as a sum of the place value of its digits, then it is said to be in expanded form.



Solved Examples

Example 1 : Write the number 76,42,908 in expanded form.

Solution : Given numeral can be written as:

TL	L	T-Th	Th	H	T	O
7	6	4	2	9	0	8

So, 76,42,908 = 7 ten lakhs + 6 lakhs + 4 ten thousands + 2 thousands + 9 hundreds + 0 tens + 8 ones

$$= 7 \times 10,00,000 + 6 \times 1,00,000 + 4 \times 10,000 + 2 \times 1,000 + 9 \times 100 + 0 \times 10 + 8 \times 1$$

$$= 70,00,000 + 6,00,000 + 40,000 + 2,000 + 900 + 8$$



So, expanded form of 76,42,908 is:

$$70,00,000 + 6,00,000 + 40,000 + 2,000 + 900 + 8$$

Also, we can say that the short form of

$$70,00,000 + 6,00,000 + 40,000 + 2,000 + 900 + 8 \text{ is } 76,42,908.$$

Example 2 : Write the number 38,73,216 in expanded form.

Solution : Given numeral can be written as:

TL	L	T-Th	Th	H	T	O
3	8	7	3	2	1	6

So, 38,73,216 = 3 ten lakhs + 8 lakhs + 7 ten thousands + 3 thousands + 2 hundreds + 1 tens + 6 ones

$$= 3 \times 10,00,000 + 8 \times 1,00,000 + 7 \times 10,000 + 3 \times 1,000 + 2 \times 100 + 1 \times 10 + 6 \times 1$$

$$= 30,00,000 + 8,00,000 + 70,000 + 3,000 + 200 + 10 + 6$$



So, expanded form of 38,73,216 is:

$$30,00,000 + 8,00,000 + 70,000 + 3,000 + 200 + 10 + 6$$

Also, we can say that the short form of

$$30,00,000 + 8,00,000 + 70,000 + 3,000 + 200 + 10 + 6 \text{ is } 38,73,216.$$



Exercise 1.3

1. Write the expanded form of following numerals:

(a) 43,925

(b) 2,63,082

(c) 28,64,902

(d) 5,43,296

(e) 92,73,008

(f) 32,40,008

2. Write the short form of the following:

(a) $30,00,000 + 7,000 + 800 + 40 + 9$

(b) $9,00,000 + 60,000 + 4,000 + 8$

(c) $70,00,000 + 3,00,000 + 20,000 + 9,000 + 5$

(d) $30,000 + 6,000 + 500 + 20 + 3$

(e) $2,00,000 + 400 + 2$

(f) $4,00,000 + 20,000 + 500 + 8$



Skip Counting

When we write some numbers with a fixed gap between two successive numbers, then such counting is known as **skip counting**.

Solved Examples

Example 1 : Counting by two's, write five numerals from 32623 onwards.

Solution : Starting from 32623, we add 2.

The required numerals are:

32623, 32625, 32627, 32629, 32631

Example 2 : Counting by five's, write five numerals from 72892 onwards.

Solution : Starting from 72892, we add 5.

The required numerals are:

72892, 72897, 72902, 72907, 72912





Similarly,

- Counting by tens means there is a gap of 10 in every two successive numbers.
 - Counting by twenties means there is a gap of 20 in every two successive numbers.
 - Counting by fifties means there is a gap of 50 in every two successive numbers.
 - Counting by hundreds means there is a gap of 100 in every two successive numbers.
 - Counting by thousands means there is a gap of 1000 in every two successive numbers.
- and so on.



Think Wisely

I am a number. I am not an odd number. I am greater than 90 but I am not less than 100. If you subtract me from 100. You get nothing. What number am I ?



Exercise 1.4

1. Counting by tens, write the numerals from:

- (a) 73618,
- (b) 304692,
- (c) 986747,
- (d) 1234629,

2. Counting by twenties, write the numerals from:

- (a) 43520,
- (b) 76295,
- (c) 94621,
- (d) 88467,

3. Counting by fifties, write the numerals from:

- (a) 30462,
- (b) 286459,
- (c) 386702,
- (d) 2376408,



4. Counting by hundreds, write the numerals from:

- (a) 68423,
- (b) 100926,
- (c) 284652,
- (d) 3642957,

5. Counting by thousands, write the numerals from:

- (a) 38425,
- (b) 76120,
- (c) 12459,
- (d) 44398,



Successor And Predecessor

The number just **after** the given number, is called its **successor**.

It is one **more** than the number.

For example,

- The successor of 73265 is 73266
- The successor of 99999 is 100000
- The successor of 81325 is 81326
- The successor of 10298 is 10299



The number just **before** given number, is called its **predecessor**.

It is one **less** than the number.

For example,

- The predecessor of 84629 is 84628
- The predecessor of 10000 is 9999
- The predecessor of 10295 is 10294
- The predecessor of 76430 is 76429



Exercise 1.5

1. Write the successor of the following numerals:

- | | | | |
|-------------|-------|------------|-------|
| (a) 34652 | ..... | (b) 79688 | ..... |
| (c) 246809 | ..... | (d) 734988 | ..... |
| (e) 9176455 | ..... | (f) 83465 | ..... |
| (g) 88790 | ..... | (h) 43572 | ..... |

2. Write the predecessor of the following numerals:

- | | | | |
|-------------|-------|------------|-------|
| (a) 100000 | ..... | (b) 76349 | ..... |
| (c) 83490 | ..... | (d) 246958 | ..... |
| (e) 1234602 | ..... | (f) 12495 | ..... |
| (g) 54320 | ..... | (h) 64327 | ..... |

3. Complete the following table:

	Predecessor	Number	Successor
(a)		10000	
(b)		72846	
(c)		348900	
(d)		912873	
(e)		7946520	



Comparison of Numbers



We have already learnt the comparison of numbers upto 4-digits in previous class.

Now, we will follow the same rules for large numbers.





Comparing Numbers Having Different Number of Digits

Number with more digits is the greater number.

$$764329 > 73664$$

$$834026 < 1723489$$



Comparing Numbers Having Same Number of Digits

- Step 1** : To compare numbers, always begin with the left most digits in both the numbers.
- Step 2** : If they are equal in value, then compare the second digits from the left in the numbers.
- Step 3** : If they are also equal in value, then compare the third digits from the left in both the numbers.
- Step 4** : Continue the process until you come across unequal digits at the corresponding places.

Number with greatest value (or larger digit) is greater.

Solved Examples

Example 1 : Which is greater: 36792 or 364720 ?

Solution : Clearly, 36792 consist of 5-digits and 364720 consist of 6-digits. We know that, number with more digits is greater. So, $364720 > 36792$

Example 2 : Which is greater: 3467920 or 3456283 ?

Solution : Arrange the numbers in place value chart:

TL	L	T-Th	Th	H	T	O
3	4	6	7	9	2	0
3	4	5	6	2	8	3

↑ Same ↑ Same ↑ Different



At ten thousands place,

$$6 > 5$$

So, $3467920 > 3456283$

Example 3 : Which is greater: 7246598 or 7246599 ?

Solution : Arrange the numbers in place value chart:

TL	L	T-Th	Th	H	T	O
7	2	4	6	5	9	8
7	2	4	6	5	9	9

↑ ↑ ↑ ↑ ↑ ↑ ↑

Same Same Same Same Same Same Different

At ones place,

$$8 < 9$$

So, $7246598 < 7246599$

Exercise 1.6

1. Compare the following numbers: (Which one is greater?)

(a) 36427 or 734695

(b) 87408 or 87402

(c) 764398 or 34679

(d) 9783002 or 9783059

(e) 837764 or 837694

(f) 433205 or 433210

2. Encircle the smallest number:

(a) 36429, 56349, 28642, 73982

(b) 76320, 43590, 63780, 89435

(c) 1739675, 993926, 83472, 9760070

(d) 3869723, 1764900, 8397280, 9865920

3. Encircle the largest number:

(a) 73654, 28695, 98326, 90742

(b) 784320, 9873402, 8301275, 28605

(c) 2864100, 1296580, 9922460, 296001

(d) 368542, 926459, 834621, 120010



4. Write the smallest and greatest 5-digit number, using the digits:
3,6,0,2,5
5. Write the smallest and greatest 6-digit number, using the digits:
9,0,8,7,2,1
6. Write the smallest and greatest 7-digit number, using the digits:
3,4,6,7,2,9,0



Ordering of Numbers

Ordering of numbers means to arrange the numbers in either **ascending** or **descending** order.

Ascending order means to arrange the numbers from the smallest to the greatest number.



Descending order means to arrange the numbers from the greatest to the smallest number.

Example 1 : Arrange the following numbers in ascending order:
764329, 2865901, 38629, 1542860, 28659

Solution : Arrange these numbers in a place value chart:

TL	L	T-Th	Th	H	T	O
	7	6	4	3	2	9
2	8	6	5	9	0	1
		3	8	6	2	9
1	5	4	2	8	6	0
		2	8	6	5	9

Clearly,

$$28659 < 38629 < 764329 < 1542860 < 2865901$$

So, ascending order of given numbers is:

$$28659, 38629, 764329, 1542860, 2865901$$



Example 2 : Arrange the following numbers in ascending order:

1834059, 1060502, 7210591, 653108, 5100293

Solution : Arrange these numbers in a place value chart:

TL	L	T-Th	Th	H	T	O
1	8	3	4	0	5	9
1	0	6	0	5	0	2
7	2	1	0	5	9	1
	6	5	3	1	0	8
5	1	0	0	2	9	3

Clearly,

$653108 < 1060502 < 1834059 < 5100293 < 7210591$

So, ascending order of given numbers is:

653108, 1060502, 1834059, 5100293, 7210591



Teacher's Note:

Ask the children to stand in a descending order by their roll numbers.

Example 3 : Arrange the following numbers in descending order:

32659, 2926542, 856492, 9862952, 28695

Solution : Arrange these numbers in a place value chart:

TL	L	T-Th	Th	H	T	O
		3	2	6	5	9
2	9	2	6	5	4	2
	8	5	6	4	9	2
9	8	6	2	9	5	2
		2	8	6	9	5

Clearly,

$9862952 > 2926542 > 856492 > 32659 > 28695$

So, descending order of given numbers is:

9862952, 2926542, 856492, 32659, 28695



Example 4 : Arrange the following numbers in descending order:

8340251, 2856495, 4462593, 3406820, 1050608

Solution : Arrange these numbers in a place value chart:

TL	L	T-Th	Th	H	T	O
8	3	4	0	2	5	1
2	8	5	6	4	9	5
4	4	6	2	5	9	3
3	4	0	6	8	2	0
1	0	5	0	6	0	8

Clearly,

$8340251 > 4462593 > 3406820 > 2856495 > 1050608$

So, descending order of given numbers is:

8340251, 4462593, 3406820, 2856495, 1050608

Exercise 1.7

1. Arrange the following numbers in ascending order:

- (a) 28652, 1296482, 20359, 786421, 8906542
- (b) 764259, 305912, 83386, 2864951, 9721600
- (c) 32862, 43702, 864295, 984658, 29075
- (d) 8420596, 3456203, 59651, 289345, 127890
- (e) 432595, 205962, 110465, 831025, 734265
- (f) 335546, 232105, 106259, 789650, 983459

2. Arrange the following numbers in descending order:

- (a) 28659, 129659, 206542, 3065986, 30765
- (b) 73652, 834590, 76345, 3012349, 7349830
- (c) 24685, 983456, 70029, 134569, 7432659
- (d) 8465429, 9640590, 34596, 7502869, 576089
- (e) 721253, 8210659, 101059, 554051, 625981
- (f) 430596, 1203462, 764210, 9834059, 3840024





Mental Maths

Answer the following:

1. Write the number 100 more than 35900. _____
2. Write the greatest number that can be formed using the digits 0,1,2,3,4,5.

3. Find the place value of 5 in 17,581. _____
4. What is the successor of 5876? _____



Maths Lab Activity

Materials required: Paper sheet and a pencil

Steps:

1. Write all the alphabet in order.
2. Assign each alphabet a code. These codes may follow a pattern.

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
14	15	16	17	18	19	20	21	22	23	24	25	26

3. Make a group of two students each, and one of the student from the pair will write a word.
4. The partner will develop a number for the given word through assigned codes.
5. Now, the other pair will read and write that number.

Example: The given word is CARE

C - 3 A - 1 R - 18 E - 5

The secret code for given word is 31,185.



2



Roman Numbers



Learning Objectives

By the end of this lesson, students will be able to:

- Learn how to count using Roman numerals .
- Solve simple maths problems using Roman numerals.
- Create charts of Roman numerals and their Arabic equivalents.



Warm-Up

Complete the cross number using Hindu- Arabic numerals.

a →	b ↓		c →		
					d ↓
		e →			
	f →			g →	
h ↓		i →	j ↓		
			k →		

Across	Down
(a) $X + IV$	(b) $L - X$
(c) $LX + I$	(C) $LX + VI$
(e) $XX + XI$	(d) $CX + VI$
(f) $L + XXVII$	(h) $LXXX + II$
(g) $XL + VI$	(J) $XL + IX$
(i) $L + IV$	
(k) $XC + V$	



Teacher's Note:

Ask the children to write their birth date in Roman numbers.



In the class III, we have learnt roman numbers upto XL (40).

Roman Numbers From I (1) to C (100).

Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals
1	I	26	XXVI	51	LI	76	LXXVI
2	II	27	XXVII	52	LII	77	LXXVII
3	III	28	XXVIII	53	LIII	78	LXXVIII
4	IV	29	XXIX	54	LIV	79	LXXIX
5	V	30	XXX	55	LV	80	LXXX
6	VI	31	XXXI	56	LVI	81	LXXXI
7	VII	32	XXXII	57	LVII	82	LXXXII
8	VIII	33	XXXIII	58	LVIII	83	LXXXIII
9	IX	34	XXXIV	59	LIX	84	LXXXIV
10	X	35	XXXV	60	LX	85	LXXXV
11	XI	36	XXXVI	61	LXI	86	LXXXVI
12	XII	37	XXXVII	62	LXII	87	LXXXVII
13	XIII	38	XXXVIII	63	LXIII	88	LXXXVIII
14	XIV	39	XXXIX	64	LXIV	89	LXXXIX
15	XV	40	XL	65	LXV	90	XC
16	XVI	41	XLI	66	LXVI	91	XCI
17	XVII	42	XLII	67	LXVII	92	XCII
18	XVIII	43	XLIII	68	LXVIII	93	XCIII
19	XIX	44	XLIV	69	LXIX	94	XCIV
20	XX	45	XLV	70	LXX	95	XCV
21	XXI	46	XLVI	71	LXXI	96	XCVI
22	XXII	47	XLVII	72	LXXII	97	XCVII
23	XXIII	48	XLVIII	73	LXXIII	98	XCVIII
24	XXIV	49	XLIX	74	LXXIV	99	XCIX
25	XXV	50	L	75	LXXV	100	C



Facts to Know

Roman Numerals were invented as a means of trading.





How To Write Roman Numerals?



Quick Tip

If a symbol comes after another symbol, then you add it to the symbol before it. For example, VI = 6 since V = 5 and I = 1.

Rule 1 : Repetition of a roman number means addition.

For example, III = $1 + 1 + 1 = 3$
XX = $10 + 10 = 20$

Note: Symbols V, L and D can never be repeated.

Rule 2 : When a smaller number is written on the right of a larger number, we add smaller to the larger one.

For example, VII = $5 + 1 + 1 = 7$
XI = $10 + 1 = 11$
XV = $10 + 5 = 15$
LX = $50 + 10 = 60$



Rule 3 : When a smaller number is written on the left of a larger number, we subtract smaller from the larger one.

For example, IV = $5 - 1 = 4$
IX = $10 - 1 = 9$
XL = $50 - 10 = 40$
XC = $100 - 10 = 90$

Rule 4 : When a smaller numeral is placed between the two larger numerals, then the smaller numeral is always subtracted from the larger numeral immediately following it.

For example: XIV = $10 + (5 - 1) = 14$
XIX = $10 + (10 - 1) = 19$
XXIX = $10 + 10 + (10 - 1) = 29$
XLIX = $(50 - 10) + (10 - 1) = 49$



Solved Examples

Example 1 : Write the roman numerals for the following Hindu-Arabic numerals:

- (a) 56 (b) 88 (c) 73 (d) 92

Solution :

(a) $56 = 50 + 6$
 $= \text{LVI}$

(b) $88 = 80 + 8$
 $= \text{LXXXVIII}$

(c) $73 = 70 + 3$
 $= \text{LXXIII}$

(d) $92 = 90 + 2$
 $= \text{XCII}$



Think Wisely

Hey! I am a roman number.

I am X years old and my friend is 2 years older than me.
So, tell my friend's age in roman numbers.

Exercise 2.1

1. Write the Roman numerals for each of the following Hindu-Arabic numerals:

- (a) 19 (b) 48 (c) 64 (d) 59
(e) 70 (f) 99 (g) 500 (h) 1000

2. Write the Hindu-Arabic numerals for each of the following Roman numerals:

- (a) C (b) LIX (c) XXIII (d) LXXXVI
(e) XCVIII (f) LXXVII (g) LXII (h) XL

3. Compare (> or <) the following Roman numerals:

- (a) XXXVI  XXXIV (b) LXV  XLVIII



(c) C



D

(d) XCIX



XCIV

(e) XXVI



XXVII

(f) XLII



LXX



Mental Maths

Answer in one word.

- Convert 56 into roman numerals. _____
- What will be the result of $18 \times 3 - 14$ in roman numerals? _____
- In roman numerals, what is the sum of LXIV and XXVI? _____
- Which is greater IV or X? _____



Maths Lab Activity

Materials required: Paper and a pencil

Steps:

Few addition equations have been given. Check whether these are right or wrong. If there is any mistake, correct it and write the reason for it.

Equation	Correction	Reason
1. II + II = VI	II + II = IV	When a smaller letter is placed on the left of the bigger number, it means subtraction. Hence, the correct way of writing 4 in roman is IV
2. L + V = LIIIII		
3. XX + X = XXVV		
4. V + IV = IX		

