CHAPTER 1

Knowing Our Numbers

Understanding the Lesson

- Important role of numbers in Mathematics.
- Comparison of numbers.
- Arranging the numbers.
- Formation of numbers by shifting the places of the digits.
- Place value and face value of a digit in a given number.
- Expanded form of a number.
- Hindi-Arabic and International systems of numerations.
- Numbers used in measurement like length, mass, capacity etc.
- Algebraic operations on numbers.
- Estimation or rough idea.
- Use of brackets and their expansion.
- Roman numerals and their symbols.
- Conversion of Roman numerals into Hindu-Arabic numerals and vice-a-versa.

Conceptual Facts

- To represent any number, we use ten symbols, namely 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 which are called digits or figure.
- Numbers help us to compare collection of two or more similar objects and we can decide which collections is bigger or smaller.
- Comparison of numbers helps us to arrange the objects in increasing or decreasing order.
- If we shift the digits of a given number, then the new number is different from the original one. 853 is different from 358 but 202 remains same even after changing the unit place and hundredth place of the number. Why?
- If we add one more to the greatest 5-digit number, we get the smallest 6-digit number 99999 (5-digit) + 1 = 100000 (6-digit).
- Generally, numbers are written in two types of charts:
  (*i*) Hindu Arabic Place – Value Chart. (*ii*) International Place – Value Chart.
- Estimation gives us a rough idea of the answer to a question involving operations on number.
- In Roman numeration system, only symbols are used to express a number instead of digits.
  I = 1, V = 5, X = 10, L = 50, C = 100, D = 500, M =1000
- Zero on the extreme left of a number has no value.
- Ascending order means arrangement from the smallest to the greatest.
- Descending order means arrangement from the greatest to the smallest.

Solutions to NCERT Textbook Questions

TRY THESE (*PAGE 2*)

Q1. Can you instantly find the greatest and the smallest numbers in each row?
(*a*) 382, 4972, 18, 59785, 750.
(*b*) 1473, 89423, 100, 5000, 310.
(*c*) 1834, 75284, 111, 2333, 450.
(*d*) 2853, 7691, 9999, 12002, 124.

Sol. (*a*) 59875 is the greatest and 18 is the smallest number.
(*b*) 89423 is the greatest and 100 is the smallest number.
(*c*) 75284 is the greatest and 111 is the smallest number.
(*d*) 9999 is the greatest and 124 is the smallest number.

TRY THESE (*PAGE 2*)

Q1. Find the greatest and the smallest numbers.
(*a*) 4536, 4892, 4370, 4452.
(*b*) 15623, 15073, 15189, 15800.
(*c*) 25286, 25245, 25270, 25210.
(*d*) 6895, 23787, 24569, 24659.

Sol. (*a*) The greatest number is 4892
The smallest number is 4370
(*b*) The greatest number is 15800
The smallest number is 15073
(*c*) The greatest number is 25286
The smallest number is 25210
(*d*) The greatest number is 24659
The smallest number is 6895

TRY THESE (*PAGE 3, 4*)

Q1. Use the given digits without repetition and make the greatest and smallest 4-digit numbers.
(*a*) 2, 8, 7, 4 (*b*) 9, 7, 4, 1
(*c*) 4, 7, 5, 0 (*d*) 1, 7, 6, 2
(*e*) 5, 4, 0, 3

Sol. (*a*) Given digits are 2, 8, 7, 4
The greatest 4-digit number = 8742
The smallest 4-digit number = 2478
(*b*) Given digits are 9, 7, 4, 1
The greatest 4-digit number = 9741
The smallest 4-digit number = 1479
(*c*) Given digits are 4, 7, 5, 0
The greatest 4-digit number = 7540
The smallest 4-digit number = 4057
[**Note:** 0457 will become 3-digit number]
(*d*) Given digits are 1, 7, 6, 2
The greatest 4-digit number = 7621
The smallest 4-digit number = 1267
(*e*) Given digits are 5, 4, 0, 3
The greatest 4-digit number = 5430
The smallest 4-digit number = 3045

Q2. Make the greatest and the smallest 4-digit numbers by using any one digit twice.
(*a*) 3, 8, 7 (*b*) 9, 0, 5
(*c*) 0, 4, 9 (*d*) 8, 5, 1

Sol. (*a*) Given digits are 3, 8, 7
The greatest 4-digit number = 8873
The smallest 4-digit number = 3378
(*b*) Given digits are 9, 0, 5
The greatest 4-digit number = 9950
The smallest 4-digit number = 5009
(*c*) Given digits are 0, 4, 9
The greatest 4-digit number = 9940
The smallest 4-digit number = 4009
(*d*) Given digits are 8, 5, 1
The greatest 4-digit number = 8851
The smallest 4-digit number = 1158

Q3. Make the greatest and the smallest 4-digit numbers using any four different digits with conditions given below.
(*a*) Digit 7 is always at ones place

Greatest	9	8	6	7
Smallest	1	0	2	7

(**Note:** The number cannot begin with the digit 0. Why?)

(*b*) Digit 4 is always at tens place

Greatest			4	
Smallest			4	

(*c*) Digit 9 is always at hundreds place

Greatest		9		
Smallest		9		

(*d*) Digit 1 is always at thousands place

Greatest	1			
Smallest	1			

Sol. (*b*) Greatest number = 9 8 4 7
Smallest number = 1 0 4 2
(*c*) Greatest number = 8 9 7 6
Smallest number = 1 9 0 2

(*d*) Greatest number = | 1 | 9 | 8 | 7 |

Smallest number = | 1 | 0 | 2 | 3 |

Q4. Take two digits, say 2 and 3. Make 4-digit numbers using both the digits equal number of times.
Which is the greatest number?
Which is the smallest number?
How many different numbers can you make in all?

Sol. 4-digit numbers formed by using the digits 2 and 3 equal number of times are:
2233, 2323, 3232, 3322, 2332, 3223
Greatest number is 3322
Smallest number is 2233
We can make 6 different numbers in all.

TRY THESE (*PAGE 5*)

Q1. Arrange the following numbers in ascending order:
(*a*) 847, 9754, 8320, 571
(*b*) 9801, 25751, 36501, 38802

Sol. (*a*) Ascending order of the given numbers is 571, 847, 8320, 9754
(*b*) Ascending order of the given numbers is 9801, 25751, 36501, 38802

Q2. Arrange the following numbers in descending order:
(*a*) 5000, 7500, 85400, 7861
(*b*) 1971, 45321, 88715, 92547

Sol. (*a*) The descending order of the given numbers is, 85400, 7861, 7500, 5000
(*b*) The descending order of the given numbers is, 92547, 88715, 45321, 1971

Extra ten examples of ascending/descending order of numbers.

Example 1. *Arrange the following numbers in ascending order:*
(*a*) *8523, 3056, 9320, 6232*
(*b*) *7032, 6623, 5321, 1123*
(*c*) *9923, 9976, 9955, 9993*
(*d*) *6321, 2651, 5683, 6400*
(*e*) *3225, 6325, 3859, 4320*

Sol. (*a*) Ascending order of the given numbers is 3056, 6232, 8523, 9320
(*b*) Ascending order of the given numbers is 1123, 5321, 6623, 7032
(*c*) Ascending order of the given numbers is 9923, 9955, 9976, 9993
(*d*) Ascending order of the given numbers is 2651, 5683, 6321, 6400
(*e*) Ascending order of the given numbers is 3225, 3859, 4320, 6325

Example 2. *Arrange the following numbers in descending order:*
(*a*) *6321, 7321, 3621, 4512*
(*b*) *7321, 3754, 7331, 7325*
(*c*) *6300, 6003, 6030, 6303*
(*d*) *1123, 1213, 1321, 1312*
(*e*) *2325, 2352, 2523, 2532*

Sol. (*a*) Descending order of the given numbers is 7321, 6321, 4512, 3621
(*b*) Descending order of the given numbers is 7331, 7325, 7321, 3754
(*c*) Descending order of the given numbers is 6303, 6300, 6030, 6003
(*d*) Descending order of the given numbers is 1321, 1312, 1213, 1123
(*e*) Descending order of the given numbers is 2532, 2523, 2352, 2325

TRY THESE (*PAGE 6, 7*)

Read and expand the numbers wherever there are blanks.

Number	*Number Name*	*Expansion*
20000	Twenty thousand	2 × 10000
26000	Twenty-six thousand	2 × 10000 + 6 × 1000
38400	Thirty-eight thousand four hundred	3 × 10000 + 8 + 1000 + 4 × 100
65740	Sixty-five thousand seven hundred forty	6 × 10000 + 5 + 1000 + 7 × 100 + 4 × 10
89324	Eighty-nine thousand three hundred twenty-four	8 × 10000 + 9 × 1000 + 3 × 100 + 2 × 10 + 4 × 1
50000	.....	.....
41000	.....	.....
47300	.....	.....
57630	.....	.....
29485	.....	.....

29085	.....	.....
20085	.....	.....
20005	.....	.....

Sol.

Number	*Number Name*	*Expansion*
50000	Fifty thousand	5 × 10000
41000	Forty-one thousand	4 × 10000 + 1 × 1000
47300	Forty-seven thousand three hundred	4 × 10000 + 7 × 1000 + 3 × 100
57630	Fifty-seven thousand six hundred thirty	5 × 10000 + 7 × 1000 + 6 × 100 + 3 × 10
29485	Twenty-nine thousand four hundred eighty-five	2 × 10000 + 9 × 1000 + 4 × 100 + 8 × 10 + 5 × 1
29085	Twenty-nine thousand eighty-five	2 × 10000 + 9 × 1000 + 8 × 10 + 5 × 1
20085	Twenty thousand eighty-five	2 × 10000 + 8 × 10 + 5 × 1
20005	Twenty thousand five	2 × 10000 + 5 × 1

Write five more 5-digit numbers, read them and expand them.

Number	*Number Name*	*Expansion*
32500	Thirty-two thousand five hundred	3 × 10000 + 2 × 1000 + 5 × 100
48920	Forty-eight thousand nine hundred twenty	4 × 10000 + 8 × 1000 + 9 × 100 + 2 × 10
31625	Thirty-one thousand six hundred twenty-five	3 × 10000 + 1 × 1000 + 6 × 100 + 2 × 10 + 5 × 1
87320	Eighty-seven thousand three hundred twenty	8 × 10000 + 7 × 1000 + 3 × 100 + 2 × 10
95216	Ninety-five thousand two hundred sixteen	9 × 10000 + 5 × 1000 + 2 × 100 + 1 × 10 + 6 × 1

TRY THESE (*PAGE 7*)

Q. Read and expand the numbers wherever there are blanks.

Number	*Number Name*	*Expansion*
3,00,000	Three lakh	3 × 1,00,000
3,50,000	Three lakh fifty thousand	3 × 1,00,000 + 5 × 10,000
3,53,500	Three lakh fifty-three thousand five hundred	3 × 1,00,000 + 5 × 10,000 + 3 × 1000 + 5 × 100
4,57,928	.....	.....
4,07,928	.....	.....
4,00,829	.....	.....
40,00,029	.....	.....

Sol.

Number	*Number Name*	*Expansion*
4,57,928	Four Lakh fifty-seven thousand nine hundred twenty-eight	4 × 1,00,000 + 5 × 10000 + 7 × 1000 + 9 × 100 + 2 × 10 + 8 × 1
4,07,928	Four lakh seven thousand nine hundred twenty-eight	4 × 1,00,000 + 7 × 1000 + 9 × 100 + 2 × 10 + 8 × 1
4,00,829	Four lakh eight hundred twenty-nine	4 × 1,00,000 + 8 × 1000 + 2 × 10 + 9 × 1
40,00,029	Forty lakh eight hundred twenty-nine	4 × 1,00,0000 + 8 × 1000 + 2 × 10 + 9 × 1

TRY THESE (*PAGE 8*)

Q. 1. What is 10 – 1 = ?
2. What is 100 – 1 = ?
3. What is 10,000 – 1 = ?
4. What is 1,00,000 – 1 = ?
5. What is 1,00,00,000 – 1 = ?

Sol. 1. 10 – 1 = 9
2. 100 – 1 = 99
3. 10000 – 1 = 9999
4. 1,00,000 – 1 = 99,999
5. 1,00,00,000 – 1 = 99,99,999

TRY THESE (*PAGE 8*)

Q1. Give five examples where the number of things counted would be more than 6-digit number.

Sol. (*i*) Number of Geeta published each year.
(*ii*) Number of students appeared in Central Board of Secondary Examination in this year.
(*iii*) Number of people reside in Delhi NCR.
(*iv*) Number of students studying in Delhi University.
(*v*) Number of saving accounts opened in Banks is Prime Minister Jan-Dhan Yojna in one year.

Q2. Starting from the greatest 6-digit number, write the previous five numbers in descending order.

Sol. We have 6-digit greatest number as 999999 five previous numbers in descending order are 999998, 999997, 999996, 999995 and 999994.

Q3. Starting from the smallest 8-digit number, write the next five numbers in ascending order and read them.

Sol. 8-digit smallest number is 10000000
New five 8-digit numbers in ascending order are:

10000001	One crore one
10000002	One crore two
10000003	One crore three
10000004	One crore four
10000005	One crore five

TRY THESE (*PAGE 11*)

Q1. Read these numbers. Write them using placement boxes and then write their expanded forms.
(*i*) 475320 (*ii*) 9847215 (*iii*) 97645310 (*iv*) 30458094
(*a*) Which is the smallest number? (*b*) Which is the greatest number?
(*c*) Arrange these numbers in ascending and descending orders.

Sol. (*i*)

Number	T Cr	Cr	T L	L	T Th	Th	H	T	O
475320	–	–	–	4	7	5	3	2	0

Number Name – Four lakh seventy-five thousand three hundred twenty.
Expansion – $4 \times 100000 + 7 \times 10000 + 5 \times 1000 + 3 \times 100 + 2 \times 10$

(*ii*)

Number	T Cr	Cr	T L	L	T Th	Th	H	T	O
9847215	–	–	9	8	4	7	2	1	5

Number Name – Ninety-eight lakh forty-seven thousand two hundred fifteen.
Expansion – $9 \times 1000000 + 8 \times 100000 + 4 \times 10000 + 7 \times 1000 + 2 \times 100 + 1 \times 10 + 5 \times 1$

(*iii*)

Number	T Cr	Cr	T L	L	T Th	Th	H	T	O
97645310	–	9	7	6	4	5	3	1	0

Number Name – Nine crore seventy-six lakh forty-five thousand three hundred ten.
Expansion – $9 \times 10000000 + 7 \times 1000000 + 6 \times 100000 + 4 \times 10000 + 5 \times 1000 + 3 \times 100 + 1 \times 10$

(*iv*)

Number	T Cr	Cr	T L	L	T Th	Th	H	T	O
30458094	–	3	0	4	5	8	0	9	4

Number Name – Three crore four lakh fifty-eight thousand ninety-four.
Expansion – $3 \times 10000000 + 4 \times 100000 + 5 \times 10000 + 8 \times 1000 + 9 \times 10 + 4 \times 1$

(*a*) The smallest number is 475320

(*b*) The greatest number is 97645310

(*c*) Ascending order: 475320, 9847215, 30458094, 97645310

Descending order: 97645310, 30458094, 9847215, 475320

Q2. Read these numbers:

(*i*) 527864 (*ii*) 95432

(*iii*) 18950049 (*iv*) 70002509

(*a*) Write these numbers using placement boxes and then using commas in Indian as well as International System of Numeration.

(*b*) Arrange these in ascending and descending orders.

Sol. (*a*) (*i*) 527864

T Cr	Cr	T L	L	T Th	Th	H	T	O
–	–	–	5	2	7	8	6	4

Indian System of Numeration = 5,27,864

International System of Numeration = 527,864

(*ii*) 95432

T Cr	Cr	T L	L	T Th	Th	H	T	O
–	–	–	—	9	5	4	3	2

Indian System of Numeration = 95,432

International System of Numeration = 95,432

(*iii*) 18950049

T Cr	Cr	T L	L	T Th	Th	H	T	O
–	1	8	9	5	0	0	4	9

Indian System of Numeration = 1,89,50,049

International System of Numeration = 18,950,049

(*iv*) 70002509

T Cr	Cr	T L	L	T Th	Th	H	T	O
–	7	0	0	0	2	5	0	9

Indian System of Numeration = 7,00,02,509

International System of Numeration = 70,002,509

(*b*) Ascending order: 95432, 527864, 18950049, 70002509

Descending order: 70002509, 18950049, 527864, 95432

Q3. *Take three more groups of large numbers and do the exercise given above.*

Sol. (*a*) Let us take a group of 3 large numbers.

(*i*) 370589 (*ii*) 24568903

(*iii*) 10003876

(*i*) 370589

T Cr	Cr	T L	L	T Th	Th	H	T	O
–	–	–	3	7	0	5	8	9

Indian System of Numeration = 3,70,589

International System of Numeration = 370,589

(*ii*) 24568903

T Cr	Cr	T L	L	T Th	Th	H	T	O
–	2	4	5	6	8	9	0	3

Indian System of Numeration = 2,45,68,903

International System of Numeration = 24,568,903

(*iii*) 10003876

T Cr	Cr	T L	L	T Th	Th	H	T	O
–	1	0	0	0	3	8	7	6

Indian System of Numeration = 1,00,03,876

International System of Numeration = 10,003,876

(*b*) Ascending order: 370589, 10003876, 24568903

Descending order: 24568903, 10003876, 370589

Try These (*Page 11*)

Q1. You have the following digits 4, 5, 6, 0, 7 and 8. Using them, make five numbers each with 6 digits.

(*a*) Put commas for easy reading.

(*b*) Arrange them in ascending and descending order.

Sol. Using the digits 4, 5, 6, 0, 7 and 8, we consider the following five numbers of 6-digits:

(*i*) 456078 (*ii*) 607845 (*iii*) 560784

(*iv*) 847056 (*v*) 780654

(*a*) Commas:

(*i*) 456078 = 4,56,078 (*ii*) 607845 = 6,07,845

(*iii*) 560784 = 5,60,784 (*iv*) 847056 = 8,47,056

(*v*) 780654 = 7,80,654

(*b*) Ascending order : 456078, 560784, 607845, 780654, 847056

Descending order : 847056, 780654, 607845, 560784, 456078

Q2. Take the digits 4, 5, 6, 7, 8 and 9. Make any three numbers each with 8 digits. Put commas for easy reading.

Sol. Using the digits 4, 5, 6, 7, 8 and 9, we consider the following 8-digits numbers:

(*i*) 54687954 (*ii*) 89657454

(*iii*) 88899554

(*a*) Commas:

(*i*) 54687954 = 5,46,87,954

(*ii*) 89657454 = 8,96,57,454

(*iii*) 88899554 = 8,88,99,554

Q3. From the digits 3, 0 and 4, make five numbers each with 6 digits. Use commas.

Sol. Using the digits 3, 0 and 4, we consider the following five 6-digit numbers:

(*i*) 304430 (*ii*) 443340 (*iii*) 300430

(*iv*) 444330 (*v*) 400033

Commas:

(*i*) 304430 = 3,04,430 (*ii*) 443340=4,43,340

(*iii*) 300430 = 3,00,430 (*iv*) 444330=4,44,330

(*v*) 400033 = 4,00,033

EXERCISE 1.1

Q1. Fill in the blanks:

(*a*) 1 lakh = ... ten thousand.

(*b*) 1 million = ... hundred thousand.

(*c*) 1 crore = ... ten lakh.

(*d*) 1 crore = ... million.

(*e*) 1 million = ... lakh.

Sol. (*a*) 1 lakh = **ten** ten thousand.

(*b*) 1 million = **ten** hundred thousand.

(*c*) 1 crore = **ten** ten lakh

(*d*) 1 crore = **ten** million

(*e*) 1 million = **ten** lakh

Q2. Place commas correctly and write the numerals:

(*a*) Seventy-three lakh seventy-five thousand three hundred seven.

(*b*) Nine crore five lakh forty-one.

(*c*) Seven crore fifty-two lakh twenty-one thousand three hundred two.

(*d*) Fifty-eight million four hundred twenty-three thousand two hundred two.

(*e*) Twenty-three lakh thirty thousand ten.

Sol. (*a*) 73,75,307 (*b*) 9,05,00,041

(*c*) 7,52,21,302 (*d*) 5,84,23,202

(*e*) 23,30,010.

Q3. Insert commas suitably and write the names according to Indian System of Numeration:

(*a*) 87595762 (*b*) 8546283

(*c*) 99900046 (*d*) 98432701

Sol. (*a*) 8,75,95,762 (Eight crore seventy-five lakh ninety-five thousand seven hundred sixty-two)

(*b*) 85,46,283 (Eighty-five lakh forty-six thousand two hundred eighty-three)

(*c*) 9,99,00,046 (Nine crore ninety-nine lakh forty-six)

(*d*) 9,84,32,701 (Nine crore eighty-four lakh thirty-two thousand seven hundred one)

Q4. Insert commas suitably and write the names according to International System of Numeration:

(*a*) 78921092 (*b*) 7452283

(*c*) 99985102 (*d*) 48049831

Sol. (*a*) 78,921,092 (Seventy-eight million nine hundred twenty-one thousand ninety-two)

(*b*) 7,452,283 (Seven million four hundred fifty-two thousand two hundred eighty-three)

(*c*) 99,985,102 (Ninety-nine million nine hundred eighty-five thousand one hundred two)

(*d*) 48,049,831 (Forty-eight million forty-nine thousand eight hundred thirty-one)

TRY THESE (*PAGE 12*)

Q1. How many centimetres make a kilometre?

Sol. 1,00,000 centimetres = 1 kilometre.

Q2. Name five large cities in India. Find their population. Also, find the distance in kilometres between each pair of these cities.

Sol. Large cities in India are:

Delhi, Chandigarh, Kanpur, Lucknow and Patna

Population of Delhi	= 1,67,87,941
Population of Chandigarh	= 1,055,450
Population of Kanpur	= 2,765,348
Population of Lucknow	= 2,817,105
Population of Patna	= 1,684,222
Distance between Delhi to Chandigarh	= 250 km.

Distance between Chandigarh to Kanpur = 650 km.
Distance between Kanpur to Lucknow = 200 km.
Distance between Lucknow to Patna = 325 km.

TRY THESE (*PAGE 13*)

Q1. How many milligrams make one kilogram?

Sol. 10,00,000 milligrams = 1 kilogram.

Q2. A box contains 2,00,000 medicine tablets each weighing 20 mg. What is the total weight of all the tablets in the box in grams and in kilograms?

Sol. Number of medicine tablets = 2,00,000
Weight of one tablet = 20 mg
∴ Weight of 2,00,000 tablets
= 20 × 2,00,000 mg
= 40,00,000 mg or 4 kilograms
[∵ 1 kg = 1000000 mg]

TRY THESE (*PAGE 13*)

Q1. A bus started its journey and reached different places with a speed of 60 km/hr. The journey is shown below.

(*i*) Find the total distance covered by the bus from A to D.

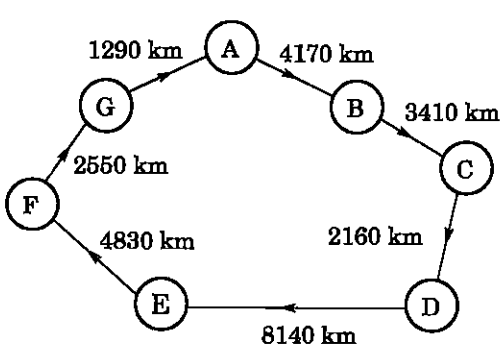
(*ii*) Find the total distance covered by the bus from D to G.

(*iii*) Find the total distance covered by the bus, if it starts from A and returns back to A.

(*iv*) Can you find the difference of distances from C to D and D to E?

(*v*) Find out the time taken by the bus to reach
(*a*) A to B (*b*) C to D
(*c*) E to G (*d*) Total journey.

Sol. (*i*) Total distance covered by the bus from A to D
= 4170 km + 3410 km + 2160 km
= 9740 km.



(*ii*) Total distance covered by the bus from D to G
= 8140 km + 4830 km + 2550 km
= 15520 km.

(*iii*) Total distance covered by the bus if it starts from A and return back to A
= 4170 km + 3410 km + 2160 km
+ 8140 km + 4830 km
+ 2550 km + 1290 km
= 26550 km.

(*iv*) Distance from C to D = 2160 km
Distance from D to E = 8140 km
∴ Difference = 8140 km – 2160 km
= 5980 km.

(*v*) (*a*) Time taken by the bus to reach A to B

$$= \frac{\text{Distance from A to B}}{\text{Speed of the bus}}$$

$$= \frac{4170}{60} \text{ hour} = \frac{417}{6} \text{ hour}$$

$$= \frac{139}{2} \text{ hour} = 69\frac{1}{2} \text{ hour}$$

= 69 hour 30 minutes

(*b*) Time taken by the bus from C to D

$$= \frac{\text{Distance from C to D}}{\text{Speed of the bus}}$$

$$= \frac{2160}{60} \text{ hours} = 36 \text{ hours.}$$

(*c*) Time taken by the bus from E to G

$$= \frac{\text{Distance from E to G}}{\text{Speed of the bus}}$$

$$= \frac{(4830 + 2550) \text{ km}}{60 \text{ km/hr}} = \frac{7380}{60} \text{ hours}$$

= 123 hours.

(*d*) Time taken by the bus for the total journey

$$= \frac{\text{Total distance covered}}{\text{Speed of the bus}}$$

$$= \frac{26550}{60} \text{ hours} = \frac{885}{2} \text{ hours}$$

$$= 442\frac{1}{2} \text{ hours} = 442 \text{ hours } 30 \text{ minutes}$$

Q2. Raman's shop

Things	*Price*
Apples	₹ 40 per kg
Oranges	₹ 30 per kg
Combs	₹ 3 for one
Tooth brushes	₹ 10 for one
Pencils	₹ 1 for one
Notebooks	₹ 6 for one
Soap cakes	₹ 8 for one

The sales during the last year

Apples	2457 kg
Oranges	3004 kg
Combs	22760
Tooth brushes	25367
Pencils	38530
Notebooks	40002
Soap cakes	20005

(*a*) Can you find the total weight of apples and oranges Raman sold last year?

Weight of apples = ... kg.

Weight of oranges = ... kg.

Therefore, total weight = ... kg + ... kg = ... kg.

Answer – The total weight of oranges and apples = ... kg

(*b*) Can you find the total money Raman got by selling apples?

(*c*) Can you find the total money Raman got by selling apples and oranges together?

(*d*) Make a table showing how much money Raman received from selling each item. Arrange the entries of amount of money received in descending order. Find the item which brought him the highest amount. How much is this amount?

Sol. (*a*) Weight of apples sold during the last year = 2457 kg

Weight of oranges sold during the last year = 3004 kg

Therefore, total weight of apples and oranges = 2457 kg + 3004 kg = 5461 kg

(*b*) Total money got by Raman in selling apples = ₹ 2457 × 40 = ₹ 98,280.

(*c*) Total money got by Raman in selling apples and oranges together

= ₹ (2457 × 40 + 3004 × 30)

= ₹ (98280 + 90120)

= ₹ 188400

(*d*)

S. No.	*Item*	*Weight / Qty.*	*Price*	*Total money received*
1.	Apples	2,457 kg	₹ 40 per kg	2,457 × 40 = ₹ 98,280
2.	Oranges	3,004 kg	₹ 30 per kg	3,004 × 30 = ₹ 90,120
3.	Combs	22,760	₹ 3 for one	22,760 × 3 = ₹ 68,280
4.	Tooth brushes	25,367	₹ 10 for one	25,367 × 10 = ₹ 2,53,670
5.	Pencils	38,530	₹ 1 for one	38,530 × 1 = ₹ 38,530
6.	Notebooks	40,002	₹ 6 for one	40,002 × 6 = ₹ 2,40,012
7.	Soap cakes	20,005	₹ 8 for one	20,005 × 8 = ₹ 1,60,040

Descending order of money received:

₹ 253670, ₹ 240012, ₹ 160040, ₹ 98280, ₹ 90120, ₹ 68280, ₹ 38530

Name of the item which bought him the highest amount is **tooth brushes.**

The highest amount is ₹ 2,53,670.

EXERCISE 1.2

Q1. A book exhibition was held for four days in a school. The number of tickets sold at the counter on the first, second, third and final day was respectively 1094, 1812, 2050 and 2751. Find the total number of tickets sold on all the four days.

Sol. Number of tickets sold on the first day = 1094

Number of tickets sold on the second day = 1812

Number of tickets sold on the third day = 2050

Number of tickets sold on the final day = 2751

∴ Total number of tickets sold on all the four days = 1094 + 1812 + 2050 + 2751 = 7,707.

Q2. Shekhar is a famous cricket player. He has so far scored 6980 runs in test matches. He wishes to complete 10,000 runs. How many more runs does he need?

Sol. Shekhar has so far scored 6980 runs

He wishes to complete 10,000 runs.

Therefore total number of runs needed by him = 10,000 – 6980 = 3020 runs

Q3. In an election, the successful candidate registered 5,77,500 votes and his nearest rival secured 3,48,700 votes. By what margin did the successful candidate win the election?

Sol. Number of votes secured by the successful candidate = 5,77,500

Number of votes secured by his nearest rival = 3,48,700

Therefore, margin of votes to win the election = 5,77,500 – 3,48,700 = 2,28,800

Q4. Kirti bookstore sold books worth ₹ 2,85,891 in the first week of June and books worth ₹ 4,00,768 in the second week of the month. How much was the sale for the two weeks together? In which week was the sale greater and by how much?

Sol. Books sold in first week of June worth ₹ 2,85,891

Books sold in second week of the month worth ₹ 4,00,768

Therefore, total sale of books in the two weeks together

= ₹ 2,85,891 + ₹ 4,00,768 = ₹ 6,86,659

In the second week of the month, the sale of books was greater.

Difference of the sale of books

= ₹ 4,00,768 – ₹ 2,85,891 = ₹ 1,14,877

Hence, in second week of june, the sale of books was more by ₹ 1,14,877.

Q5. Find the difference between the greatest and the least numbers that can be written using the digits 6, 2, 7, 4, 3 each only once.

Sol. Given digits are 6, 2, 7, 4, 3

Greatest number = 76432

Least number = 23467

Therefore, difference = 76432 – 23467 = 52,965

Q6. A machine, on an average, manufactures 2,825 screws a day. How many screws did it produce in the month of January, 2006?

Sol. Number of screws manufactured in a day = 2,825.

Number of screws manufactured in month of January = 31 × 2825 = 87,575

Q7. A merchant had ₹ 78,592 with her. She placed an order for purchasing 40 radio sets at ₹ 1200 each. How much money will remain with her after the purchase?

Sol. Amount of money with the merchant = ₹ 78,592

Number of radio sets = 40

Price of one radio set = ₹ 1200

Therefore, cost of 40 radio sets = ₹ 1200 × 40

= ₹ 48,000

Remaining money with the merchant

= ₹ 78,592 – ₹ 48000 = ₹ 30,592

Hence, amount of ₹ 30,592 will remain with her after purchasing the radio sets.

Q8. A student multiplied 7236 by 65 instead of multiplying by 56. By how much was his answer greater than the correct answer?

Sol. Student has multiplied 7236 by 65 instead of multiplying by 56.

Difference between the two multiplications

= (65 – 56) × 7236 = 9 × 7236 = 65124

(We don't need to do both the multiplied)

Hence, the answer greater than the correct answer is 65,124.

Q9. To stitch a shirt, 2 m 15 cm cloth is needed. Out of 40 m cloth, how many shirts can be stitched and how much cloth will remain?

$$\begin{array}{r|l} 215 & 40000 \\ & 215 \\ \hline & 1850 \\ & 1720 \\ \hline & 130 \end{array} \quad 18$$

Sol. Total length of the cloth

= 40 m = 40 × 100 cm = 4000 cm.

Cloth needed to stitch a shirt

= 2 m 15 cm = 2 × 100 + 15 cm = 215 cm

Therefore, number of shirts stitched = $\frac{4000}{215}$

So, the number of shirts stitched = 18 and the remaining cloth = 130 cm = 1 m 30 cm

Q10. Medicine is packed in boxes, each weighing 4 kg 500 g. How many such boxes can be loaded in a van which cannot carry beyond 800 kg?

$$\begin{array}{r|l} 4500 & 800000 \\ & 4500 \\ \hline & 35000 \\ & 31500 \\ \hline & 35000 \\ & 31500 \\ \hline & 3500 \end{array} \quad 177$$

Sol. Weight of one box = 4 kg 500 g = 4 × 1000 + 500 = 4500 g

and 800 kg = 800 × 1000 = 800000 g

Therefore, 177 boxes can only be loaded in the van.

Q11. The distance between the school and the house of a student is 1 km 875 m. Everyday she walks both ways. Find the total distance covered by her in six days.

Sol. Distance between school and house = 1 km 875 m = (1000 + 875) m = 1875 m.

Distance travelled by the student in both ways = 2 × 1875 = 3750 m

Distance travelled in 6 days = 3750 m × 6 = 22500 m = 22 km 500 m.

Hence, total distance covered in six days = 22 km 500 m.

Q12. A vessel has 4 litres and 500 ml of curd. In how many glasses, each of 25 mL capacity, can it be filled?

Sol. Quantity of curd in a vessel = 4 l 500 mL = (4 × 1000 + 500) mL = 4500 mL.

Capacity of 1 glass = 25 mL

Therefore number of glasses = $\frac{4500}{25}$ = 180

TRY THESE (*PAGE 19*)

Q1. *Round these numbers to the nearest tens:*

28	32	52	41	39	48
64	59	99	215	1453	2936

Sol. Rounding off nearest to tens.

28 to 30, 32 to 30, 52 to 50, 41 to 40

39 to 40, 48 to 50, 64 to 60, 59 to 60

99 to 100, 215 to 220, 1453 to 1450, 2936 to 2940.

TRY THESE (*PAGE 20*)

Q1. *Round off the given numbers to the nearest tens, hundreds and thousands.*

Given number	*Approximate to nearest*	*Rounded form*
75847	Tens	—
75847	Hundreds	—
75847	Thousands	—
75847	Ten thousands	—

Sol.

Given number	*Approximate to nearest*	*Rounded form*
75847	Tens	75850
75847	Hundreds	75800
75847	Thousands	76000
75847	Ten thousands	80000

TRY THESE (*PAGE 22*)

Q1. Estimate the following products:

(*a*) 87 × 313 (*b*) 9 × 795

(*c*) 898 × 785 (*d*) 958 × 387.

Make five such more problems and solve them.

Sol. (*a*) 87 × 313

Rounding off 87 nearest to tens = 90

Rounding off 313 nearest to hundreds = 300

∴ Product = 90 × 300 = 27000

(*b*) 9 × 795

Rounding off 9 nearest to tens = 10

Rounding off 795 nearest hundred = 800

∴ Product = 10 × 800 = 8000

(*c*) 898 × 785

Rounding off 898 nearest to hundreds = 900

Rounding off 785 nearest to hundreds = 800

∴ Product = 900 × 800 = 720000

(*d*) 958 × 387

Rounding off 958 nearest to hundreds = 1000

Rounding off 387 nearest to hundreds = 400

∴ Product = 1000 × 400 = 400000

Five similar problems are:

(*a*) 93 × 102 (*b*) 312 × 11

(*c*) 321 × 116 (*d*) 65 × 305

(*e*) 616 × 212

Sol. (*a*) 93 × 102 = 100 × 100 = 10000

(*b*) 312 × 11 = 300 × 10 = 3000

(*c*) 321 × 116 = 300 × 100 = 30000

(*d*) 65 × 305 = 60 × 300 = 18000

(*e*) 616 × 212 = 600 × 200 = 120000

EXERCISE 1.3

Q1. Estimate each of the following using general rule:

(*a*) 730 + 998 (*b*) 796 – 314

(*c*) 12,904 + 2,888 (*d*) 28,292 – 21,496

Make ten more such examples of addition, subtraction and estimation of their outcome.

Sol. (*a*) 730 + 998

Rounding off 730 nearest to hundreds = 700

Rounding off 998 nearest to hundreds = 1,000

∴ 730 + 998 = 700 + 1000 = 1700

(*b*) 796 – 314

Rounding off 796 nearest to hundreds = 800

Rounding off 314 nearest to hundreds = 300

∴ 796 – 314 = 800 – 300 = 500

(*c*) 12,904 + 2,888

Rounding off 12,904 nearest to thousands = 13000

Rounding off 2888 nearest to thousands = 3000

∴ 12,904 + 2,888 = 13000 + 3000 = 16000

(*d*) 28,292 – 21,496

Rounding off 28,292 nearest to thousands = 28,000

Rounding off 21,496 nearest to thousands = 21,000

∴ 28,292 – 21,496 = 28,000 – 21,000 = 7,000

Example 1: 1210 + 2365 = 1200 + 2400 = 3600

Example 2: 3853 + 6524 = 4000 + 7000 = 11,000

Example 3: 8752 – 3654 = 9,000 – 4,000 = 5,000

Example 4: 4538 – 2965 = 5,000 – 3,000 = 2,000

Example 5: 1927 + 3185 = 2000 + 3,000 = 5,000

Example 6: 3258 – 1698 = 3000 – 2000 = 1,000

Example 7: 8735 + 6232 = 9000 + 6000 = 15,000

Example 8: 1038 – 1028 = 1000 – 1000 = 0

Example 9: 6352 + 5830 = 6,000 + 6,000 = 12,000

Example 10: 9854 – 6385 = 10,000 – 6000 = 4,000

Q2. Give a rough estimate (by rounding off to nearest hundreds) and also a closer estimate (by rounding off to nearest tens):

(*a*) 439 + 334 + 4,317 (*b*) 1,08,734 – 47,599

(*c*) 8,325 – 491 (*d*) 4,89,348 – 48,365

Make four such examples:

Sol. (*a*) 439 + 334 + 4,317

(*i*) Rough estimate (Rounding off to nearest hundreds)

439 + 334 + 4,317 = 400 + 300 + 4300
= 5,000

(*ii*) Closer estimate (Rounding off to nearest tens)

439 + 334 + 4317 = 440 + 330 + 4320
= 5090.

(*b*) 1,08,734 – 47,599

(*i*) Rough estimate (Rounding off to nearest hundreds)

1,08,734 – 47,599 = 1,08,700 – 47,600
= 61,100

(*ii*) Closer estimate (Rounding off to nearest tens)

1,08,734 – 47,599 = 1,08,730 – 47,600
= 61,130.

(*c*) 8325 – 491

(*i*) Rough estimate (Rounding off to nearest hundreds)

8325 – 491 = 8300 – 500 = 7800

(*ii*) Closer estimate (Rounding off to nearest tens)

8325 – 491 = 8330 – 490 = 7840.

(*d*) 4,89,348 – 48,365

(*i*) Rough estimate (Rounding off to nearest hundreds)

4,89,348 – 48,365 = 4,89,300 – 48,400
= 4,40,900

(*ii*) Closer estimate (Rounding off to nearest tens)

4,89,348 – 48,365 = 4,89,350 – 48,370
= 4,40,980

Example 1: *384 + 562*

Sol. (*i*) Rough estimate (Rounding off to nearest hundreds)

384 + 562 = 400 + 600 = 1,000

(*ii*) Closer estimate (Rounding off to nearest tens)

384 + 562 = 380 + 560 = 940

Example 2: *8765 – 3820*

Sol. (*i*) Rough estimate (Rounding off to nearest hundreds)

8765 – 3820 = 8800 – 3900 = 4900

(*ii*) Closer estimate (Rounding off to nearest tens)

8765 – 3820 = 8770 – 3820 = 4950

Example 3: *6653 – 8265*

Sol. (*i*) Rough estimate (Rounding off to nearest hundreds)

6653 + 8265 = 6700 + 8300 = 15,000

(*ii*) Closer estimate (Rounding off to nearest tens)

6653 + 8265 = 6650 + 8270 = 14920

Example 4: *3826 – 1262*

Sol. (*i*) Rough estimate (Rounding off to nearest hundreds)

3826 – 1262 = 3800 – 1300 = 2500

(*ii*) Closer estimate (Rounding off to nearest tens)

3826 – 1262 = 3830 – 1260 = 2570

Q3. Estimate the following products using general rule:

(*a*) 578 × 161 (*b*) 5281 × 3491

(*c*) 1291 × 592 (*d*) 9250 × 29

Make four more such examples.

Sol. (*a*) 578 × 161 = 600 × 200 = 1,20,000

(*b*) 5281 × 3491 = 5000 × 3000 = 1,50,00,000

(*c*) 1291 × 592 = 1300 × 600 = 7,80,000

(*d*) 9250 × 29 = 9000 × 30 = 2,70,000

Example 1: *382 × 1062*

Sol. 382 × 1062 = 400 × 1000 = 4,00,000

Example 2: *6821 × 1291*

Sol. 6821 × 1291 = 7000 × 1000 = 70,00,000

Example 3: *3858 × 9350*

Sol. 3858 × 9350 = 4000 × 9000 = 3,60,00,000

Example 4: *3405 × 7502*

Sol. 3405 × 7502 = 3000 × 8000 = 2,40,00,000

TRY THESE (*PAGE 23*)

Q1. Write the expressions for each of the following using brackets:

(*a*) Four multiplied by the sum of nine and two.

(*b*) Divide the difference of eighteen and six by four.

(*c*) Forty five divided by three times the sum of three and two.

Sol. (*a*) $4 \times (9 + 2)$ (*b*) $(18 - 6) \div 4$
(*c*) $45 \div 3 \times (3 + 2)$

Q2. Write three different situations for $(5 + 8) \times 6$.

Sol. (*i*) Sohani and Reeta work for 6 days; Sohani works 5 hours a day and Reeta 8 hours a day. How many hours do both of them work in 6 days?

(*ii*) Suresh and Ramesh study for 6 days, Suresh studies 5 hours a day and Ramesh studies 8 hours a day. How many hours do both of them study in 6 days?

(*iii*) Ruchi and Reena work for 6 days in a office; Ruchi earns ₹ 5 a day and Reena earns ₹ 8 a day. How much money do both of them earn in 6 days?

Q3. Write five situations for the following where brackets would be necessary.
(*a*) $7(8 - 3)$ (*b*) $(7 + 2)(10 - 3)$.

Sol. (*a*) (*i*) Shanu earns ₹ 8 per day and spends ₹ 3 per day. Find the amount saved by her in seven days?

(*ii*) Anil went to market with his six friends. Each of them purchased a toy for ₹ 8 with a discount of ₹ 3 on each. Find the total money paid by them to the shopkeeper.

(*iii*) Find out seven times the difference of eight and three.

(*iv*) A servant works 8 hours daily but she remains absent for 3 hours daily. How many hours she has done the work in a week?

(*v*) A player plays 8 hours daily but he takes rest for 3 hours daily. How many hours does he utilize in playing?

(*b*) $(7 + 2)(10 - 3)$

(*i*) Ramesh takes ₹ 10 from his father daily and spends ₹ 3 daily. How much money he will have in first seven days to next two days of the month?

(*ii*) Mahesh and Dinesh are two brothers. They take ₹ 10 each daily and spend ₹ 3. How much money Mahesh spent in 7 days and Dinesh in 2 days?

(*iii*) What will be the sum of seven and two multiplied by the difference of ten and three?

(*iv*) In ten days A earns ₹ 7 and B earns ₹ 2. Both of them the total money spent in 3 days

(*v*) In a street, there are 10 houses, each containing 7 males and 2 males. On Monday, 3 houses were closed. How many persons were present in the street on Monday?

TRY THESE (*PAGE 25*)

Q. Write in Roman Numerals
1. 73 2. 92

Sol. 1. 73 = LXXIII 2. 92 = XCII

Roman Numerals

1	=	I	10	=	X
2	=	II	20	=	XX
3	=	III	30	=	XXX
4	=	IV	40	=	XL
5	=	V	50	=	L
6	=	VI	60	=	LX
7	=	VII	70	=	LXX
8	=	VIII	80	=	LXXX
9	=	IX	90	=	XC
			100	=	C

(*a*) Write in Roman numerals the missing number in the above table.

(*b*) XXXX, VX, IC, XVV are not written. Can you tell why?

Sol. (*a*)

11 = XI	22 = XXII
12 = XII	23 = XXIII
13 = XIII	24 = XXIV
14 = XIV	25 = XXV
15 = XV	26 = XXVI
16 = XVI	27 = XXVII
17 = XVII	28 = XXVIII
18 = XVIII	29 = XXIX
19 = XIX	31 = XXXI
21 = XXI	

We can proceed in similar way upto 99.

(*b*) (*i*) X cannot be repeated more than 4, so, XXXX cannot be written.

(*ii*) V is never subtracted, so VX cannot be written.

(*iii*) I can only be subtracted from V and X. So IC cannot be written.

(*iv*) V is never repeated. So XVV cannot be written.

Learning More Q & A

I. Very Short Answer (VSA) Questions

Q1. Write the smallest three digit number whose value does not change on reversing its digits.

Sol. The required number is 101.

Q2. Write the greatest three digit number which does not change on reversing its digits.

Sol. The required number is 999.

Q3. What must be added to 203 to get a number whose digits are reversed of the given number?

Sol. The number obtained by reversing the digits of 203 = 302.

$\therefore$ Difference = 302 – 203 = 99

Hence, the required number is 99.

Q4. Write the following in Roman numerals:

(*a*) 72 (*b*) 38

Sol. (*a*) 72 = LXXII (*b*) 38 = XXXVIII

Q5. Write 438 in its expanded form.

Sol. 438 = 4 × 100 + 3 × 10 + 8.

Q6. Write the greatest five-digit number using the digits 4, 2 and 0.

Sol. The greatest five-digit number using the digits 4, 2 and 0 is 44420.

Q7. The capacity of a water tank is 300 litres. Express its capacity in millilitres.

Sol. We know that

1 litre = 1000 mL

$\therefore$ 300 litres = 300 × 1000 mL = 3,00,000 mL

Hence, the capacity of water tank = 3 lakh millilitres.

Q8. What is the successor of greatest 6-digit number?

Sol. Greatest 6-digit number = 999999

Successor of it = 999999 + 1 = 1000000

i.e., smallest 7-digit number.

Hence, the required successor = 10,00,000.

Q9. What is the place value of 7 in 1743?

Sol. Let us write 1743 in its expanded form

1743 = 1000 + 700 + 40 + 3

Place value of 7 = 700

Hence, the place value of 7 = 700.

II. Short Answer (SA) Questions

Q10. Of 7,12,540 and 71,25,400 which number is greater and by how much?

Sol. Since 71,25,400 is a seven-digit number and 7,12,540 is a six-digit number.

So 71,25,400 is greater than 7,12,540.

Now
$$\begin{array}{r} 7125400 \\ (-)\ 712540 \\ \hline 64,12,860 \end{array}$$

Hence 71,25,400 is greater than 7,12,540 by 64,12,860.

Q11. Write the smallest and the greatest 5-digit numbers using the digits 0, 2, 4, 6, 8 (Repetition of digits is not allowed).

Sol. Given digits are 0, 2, 4, 6, 8

5-digit greatest number = 86420;

5-digit smallest number = 20468.

Q12. Write the following numbers in ascending order. How many of them are even numbers?

63,854, 63,584, 65,348, 68,543, 64,835

Sol. The given numbers are 63,854, 63,584, 65,348, 68,543 and 64,835.

Ascending order is 63,584 ; 63,854 ; 64,835 ; 65,348 ; 68,543

Even numbers are 63,584, 63,854 and 65,348.

Q13. Round the given numbers to the nearest tens.

(*a*) 48 (*b*) 59

(*c*) 64 (*d*) 215

Sol.

Given number		Rounded off to tens
(*a*) 48	→	50
(*b*) 59	→	60
(*c*) 64	→	60
(*d*) 215	→	220

Q14. Estimate the following products:

(*a*) 86 × 316 (*b*) 898 × 786

Sol. (*a*) 86 × 316

$\because$ 86 → 90 [Rounding off to tens] and 316 → 320 [Rounding off to tens]

So, the estimated product is

90 × 320 = 28800

(*b*) 898 × 786

$\because$ 898 → 900 [Rounding off to hundreds] and 786 → 800 [Rounding off to hundreds]

So, the estimated product is 900 × 800 = 720000.

Q15. Divide 2,63,175 by 275.

Sol. We have

$$\begin{array}{r} 957 \\ 275\overline{)\,263175} \\ -2475\downarrow \\ \hline 1567 \\ -1375\downarrow \\ \hline 1925 \\ -1925 \\ \hline 0 \end{array}$$

Hence, quotient = 957 and remainder = 0.

Q16. A student multiplied 3759 by 231 instead of multiplying by 213. How much was his product greater than the correct product?

Sol. First Method:

$(3759 \times 231) - (3759 \times 213)$

$= 868329 - 800667 = 67662$

Second Method:

$3759 \times (231 - 213) = 3759 \times 18 = 67662$

Hence, the product difference is 67662.

Q17. Estimate: 25,148 + 7394 + 9343 + 752

Sol. Estimated values are

25,148	→	25100
7394	→	7400
9343	→	9300
752	→	800

So, the estimated sum is 25100 + 7400 + 9300 + 800 = 42600

Hence, the estimated sum is 42600.

Q18. Write all the even numbers between 90 and 100 in Roman Numerals.

Sol. Even numbers between 90 and 100, we have 92, 94, 96, 98.

$\therefore$ 92 = XCII, 94 = XCIV, 96 = XCVI, 98 = XCVIII

III. Long Answer (LA) Questions

Q19. Write the missing digits in the following sums:

(*a*)
$$\begin{array}{r} 4\ 1\ \square\ 8\ 7 \\ 1\ \square\ 4\ 3\ 2 \\ +\ 2\ 5\ 3\ \square\ 9 \\ \hline \square\ 4\ 6\ 0\ \square \end{array}$$

(*b*)
$$\begin{array}{r} 8\ \square\ 4\ 5\ \square \\ -\ 6\ 7\ \square\ \square\ 8 \\ \hline \square\ 4\ 7\ 7\ 5 \end{array}$$

Sol. (*a*)
$$\begin{array}{r} \textcircled{1}\ \textcircled{1}\ \textcircled{2}\ \textcircled{1} \\ 4\ 1\ \boxed{7}\ 8\ 7 \\ 1\ \boxed{7}\ 4\ 3\ 2 \\ +\ 2\ 5\ 3\ \boxed{8}\ 9 \\ \hline \boxed{8}\ 4\ 6\ 0\ \boxed{8} \end{array}$$

(*b*)
$$\begin{array}{r} 8\ \boxed{2}\ 4\ 5\ \boxed{3} \\ -\ 6\ 7\ \boxed{6}\ \boxed{7}\ 8 \\ \hline \boxed{1}\ 4\ 7\ 7\ 5 \end{array}$$

Q20. Write Hindu-Arabic numerals for:

(*a*) LXXXVI (*b*) LXXV

(*c*) XCIX (*d*) XCI

Sol. (*a*) LXXXVI = 50 + 30 + 6 = 86

(*b*) LXXV = 50 + 20 + 5 = 75

(*c*) XCIX = (100 − 10) + 9 = 99

(*d*) XCI = (100 − 10) + 1 = 91

Q21. The distance between the school and Reena's house is 1 km 480 m. Everyday she walks both ways. What distance does she cover in 6 days of a week?

Sol. Distance covered when she walks one way

= 1 km 480 m = 1480 m

Therefore, the distance covered when she walk both ways in a day

= 1480 × 2 m = 2960 m

Total distance covered by Reena in 6 days

= 2960 × 6 m = 17760 m

or 17 km 760 m

Q22. Simplify: $36 \div [5 + \{4 \times 5 \div 2\}]$

Sol. Given: $36 \div [5 + \{4 \times 5 \div 2\}]$

Using B, O, D, M, A, S

$$= 36 \div \left[5 + \left\{4 \times \frac{5}{2}\right\}\right] = 36 \div [5 + \{2 \times 5\}]$$

$$= 36 \div [5 + 10] = 36 \div 15$$

$$= 36 \times \frac{1}{15} = \frac{12}{5} \text{ or } 2\frac{2}{5}$$

Q23. To stitch a pant 1 m 15 cm cloth is needed. Out of 36 m cloth, how many pants can be stitched and how much cloth will remain?

Sol.
$$\begin{array}{r} 31 \\ 115\overline{)\,3600} \\ -345 \\ \hline 150 \\ -115 \\ \hline 35 \end{array}$$

Cloth required to stitch 1 pant

= 1 m 15 cm

= 100 cm + 15 cm [$\because$ 1 m = 100 cm]

= 115 cm

Total cloth = 36 m = 36 × 100 cm = 3600 cm

Therefore number of pants stitched = $\frac{3600}{115}$

Hence, 31 pants can be stitched and cloth left over is 35 cm.

Q24. Write each of the following numbers in figures:

(*a*) Eighty-one million four hundred twelve thousand six hundred fifty.

(*b*) Twenty million three hundred eighty thousand one hundred.

(*c*) Ninety million nine.

(*d*) Forty-nine million seven hundred eighty two thousand fifty eight.

(*e*) Six millions three hundred fifty-two thousand nine hundred forty-six.

(*f*) Seven crore twenty-three lakh eighty-six thousand, five hundred ninety-four.

(*g*) Fifty crore forty lakh sixty thousand nine.

(*h*) Nineteen crore, ninety lakh, fourteen thousand, six hundred eighty.

Sol.

In words	In figure
(*a*) Eighty-one millions four hundred twelve thousand, six hundred fifty.	81,412,650
(*b*) Twenty million three hundred eighty thousand one hundred	20,380,100
(*c*) Ninety million nine	90,000,009
(*d*) Forty-nine million seven hundred eighty-two thousand fifty-eight	49,782,058
(*e*) Six-millions three hundred fifty-two thousand nine hundred forty-six	6,352,946
(*f*) Seven crore, twenty-three lakh eighty-six thousand five hundred ninety-four	7,23,86,594
(*g*) Fifty crore forty lakh sixty thousand nine	50,40,60,009
(*h*) Nineteen crore ninety lakh fourteen thousand six hundred eighty.	19,90,14,680

Q25. Write True/False for the following statements:

(*a*) Roman symbol X cannot be repeated more than three times. .....

(*b*) VXXX = 25. .....

(*c*) Estimate value of 274 rounding off to nearest hundreds = 200. .....

(*d*) I and X can repeat at the most three times. .....

(*e*) V, L and D are neither, repeated nor written to the left of greater value symbol. .....

(*f*) There are six basic symbols in Roman Numeration system. .....

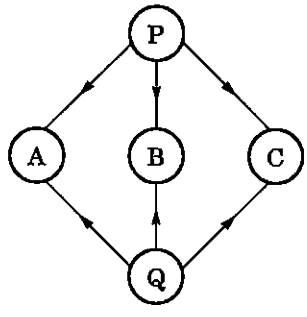
Sol. (*a*) True (*b*) False (*c*) False

(*d*) True (*e*) True (*f*) False.

IV. Higher Order Thinking Skills (HOTS) Questions

Q26. There are two factories located at place P and the other at place Q. From these factories, a certain commodity is to be delivered to each of the depots situated at A, B and C. Weekly production of commodity by P and Q are 120 kg and 150 kg respectively. Weekly requirement of commodity by A, B and C are 80 kg, 90 kg and 100 kg respectively. P delivers 60 kg to A, 40 kg to B and 20 kg to C. How much amount of the commodity should Q deliver to A, B and C to meet their requirement? If the rate of the commodity is ₹ 20 per kg, find the total amount to be paid to P and Q.

Sol.



Amount of commodity delivered by P to A = 60 kg

Amount of commodity delivered by Q to A = 80 – 60 = 20 kg

Amount of commodity delivered by P to B = 40 kg

Amount of commodity delivered by Q to B = 90 – 40 = 50 kg

Amount of commodity delivered by P to C = 20 kg

Amount of commodity delivered by Q to C = 100 – 20 = 80 kg.

Now Amount of money to be paid to P by A, B and C

= ₹ (60 × 20 + 40 × 20 + 20 × 20)

= ₹ (1200 + 800 + 400) = ₹ 2400

and amount of money to be paid to Q by A, B and C

= ₹ (20 × 20 + 50 × 20 + 80 × 20)

= ₹ (400 + 1000 + 1600) = ₹ 3000

Hence, the total amount

= ₹ 2400 + ₹ 3000 = ₹ 5400.

Questions for Practice

One Mark Questions

1. What are the ten digits (symbols) which are used to represent a number of any size?
2. What is the successor of 9,999?
3. What is the predecessor of 1,00,000?
4. What are the periods use in International System of Numeration?
5. Form the smallest and greatest 5-digit numbers using the digits 0, 1, 2, 4, 6 without repetition.
6. Write 6431 in its expanded form.
7. What is the place value of 7 in 6,82,754?
8. What is the difference between smallest 5-digit number and the greatest 4-digit number?
9. How many lakh are in 1 million?
10. Write 90 in Roman Numeral.

Two Marks Questions

11. Arrange the following numbers in ascending and descending order:
    63542, 65432, 66572, 63247, 66247
12. Read the following numbers and write in their expanded form:
    (*i*) 36900 (*ii*) 99583
13. Insert commas suitably and write the names according to International System of Numerations.
    (*a*) 8436547 (*b*) 99968205
14. Round off the following numbers to the nearest tens:
    (*a*) 1453 (*b*) 69 (*c*) 215 (*d*) 99
15. Write in Roman Numerals.
    (*a*) 36 (*b*) 64 (*c*) 91 (*d*) 98

Three Marks Questions

16. Write the expression for each of the following:
    (*a*) Divide the difference of sixteen and ten by three.
    (*b*) Eight multiplied by the sum of twelve and fifteen.
    (*c*) Eighty-five divided by the sum of twelve and five.
17. Write the following numbers in words:
    (*a*) 33,06,887 (*b*) 99,38,625
    (*c*) 60,35,603
18. Estimate the following numbers using general rule:
    (*a*) 384 × 612 (*b*) 5216 × 3916
    (*c*) 6699 × 859
19. Find the difference of the two numbers obtained by shifting the unit place and hundred place digits mutually.
    (*a*) 402 (*b*) 836 (*c*) 797
20. Write the following in numbers:
    (*a*) Seven crore sixty thousand fifty-five
    (*b*) Forty-two lakh seventy thousand eight
    (*c*) Two crore eight hundred.

Five Marks Questions

21. In a state, the number of bikes sold in the year 2010-2011 was 2,45,000. In the year 2011-2012, the number of bikes sold was 6,00,500. In whicb year were more bikes sold and how many more?
22. Simplify: $150 \div \left[\frac{3}{4} \text{ of } \{12 - (3 \times 5 \div 2)\}\right]$.
23. An amount of ₹ 6,53,850 is to be distributed equally to all the 75 students of class X. Find the amount received by each student?
24. State True or False for the following statements:
    (*a*) Rounding 75847 to the nearest hundreds is 75000.
    (*b*) 1 kilogram = 10,00,000 milligram
    (*c*) Smallest five-digit number using the digits 0, 1, 3, 7, 8 (Repetition is not allowed) is 01378.
    (*d*) Successor of 38250 is 38249.
    (*e*) Speed = Distance × Time.
25. Fill in the blanks of the following statements:
    (*a*) 1 km = ... m
    (*b*) 1 hour = ... seconds

(c) 1 million = ... lakh

(d) 6-digit greatest number = ...

(e) 1,00,00,000 – 1 = ...

26. Match the following:

Column I	Column II
(a) LIX	(i) Ten Lakh
(b) One million	(ii) 120000
(c) 578 × 161	(iii) 59
(d) Ascending order	(iv) 10-ten million
(e) 1 crore	(v) Increasing order

MULTIPLE CHOICE QUESTIONS (MCQs)

27. (a) The difference between 4-digit greatest and smallest number is

(i) 8999 (ii) 9899

(iii) 8989 (iv) None of these.

(b) The number obtained by rounding off 375 to nearest tens is

(i) 360 (ii) 380

(iii) 400 (iv) 753

(c) Which of the following numbers is equal to 1 crore?

(i) 1,00,000 (ii) 1,00,00,000

(iii) 1,00,00,100 (iv) None of these

(d) 1 litre equals to

(i) 1000 millilitres (ii) 100 millilitres

(iii) 10000 millilitres (iv) 10 millilitres

(e) Estimated value of 5,290 + 17,986 is

(i) 23,000 (ii) 32,000

(iii) 31,900 (iv) 23,200

ANSWERS

1. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
2. 10,000 3. 99,999
4. Units, thousands, millions 5. 10,246; 64,210
6. 6 × 1000 + 4 × 100 + 3 × 10 + 1
7. 700 8. 1 9. 10 lakh 10. XC
11. 63247, 63542, 65432, 66247, 66572 (ascending) and 66572, 66247, 65432, 63542, 63247 (descending).
12. (i) Thirty-six thousand nine hundred.
    Expanded form:
    3 × 10000 + 6 × 1000 + 9 × 100
    (ii) Ninety-nine thousand five hundred eighty-three.
    Expanded form:
    9 × 10000 + 9 × 1000 + 5 × 100 + 8 × 10 + 3.
13. (a) 8, 436, 547 – eight million four hundred thirty-six thousand five hundred forty-seven.
    (b) 99, 968, 205 – ninety-nine million nine hundred sixty-eight thousand two hundred five.
14. (a) 1450 (b) 70 (c) 220 (d) 100
15. (a) XXXVI (b) LXIV
    (c) XCI (d) XCVIII
16. (a) (16 – 10) ÷ 3 (b) 8 × (12 + 15)
    (c) 85 ÷ (12 + 5)
17. (a) Thirty-three lakh six thousand eight hundred eighty-seven.
    (b) Ninety-nine lakh thirty-eight thousand six hundred twenty-five.
    (c) Sixty lakh thirty five thousand six hundred three.
18. (a) 240000 (b) 2,00,00,000
    (c) 63,00,000
19. (a) 198 (b) 198 (c) 0
20. (a) 7,00,60,055 (b) 42,70,008
    (c) 2,00,00,800
21. (i) 2011-2012, 3,55,500
22. $44\frac{4}{9}$ 23. ₹ 8718
24. (a) False (b) True (c) False
    (d) False (e) False
25. (a) 1000 (b) 3600 (c) 10
    (d) 999999 (e) 9999999
26. (a) → (iii) (b) → (i) (c) → (ii)
    (d) → (v) (e) → (iv)
27. (a) (i) (b) (ii) (c) (ii)
    (d) (i) (e) (i).

Internal Assessment

1. Complete the given crossword puzzle moving in the direction indicated by arrows.

(a) _____ digit greatest number is 999.

(b) _____ lowest number is 1,00,000.

(c) In _____ order, the numbers are arranged from highest to lowest.

(*d*) In _____ order, the numbers are arranged from lowest to highest.

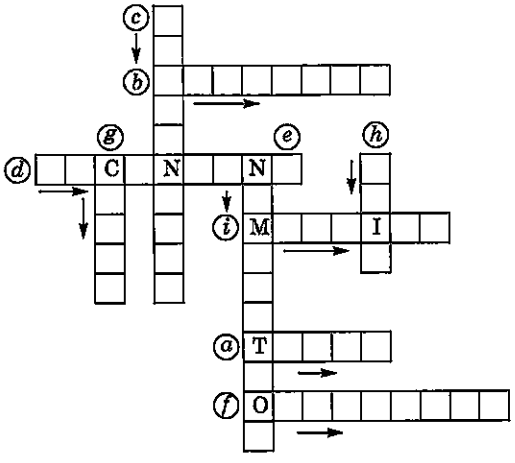
(*e*) In Roman _____, the symbol of smaller value is written to the left of greater value.

(*f*) The basic _____ of numbers are +, –, ×, ÷.

(*g*) In Indian System of Numeration, we have period _____ lakhs, thousands, ones.

(*h*) In Roman numeral 29 is written as _____.

(*i*) Ten lakhs make a _____.



2. Choose True or False in each of the following statements:
   (*a*) The symbol V, L and D are never repeated. (T/F)
   (*b*) The symbol X cannot be repeated more than three times. (T/F)
   (*c*) 1 kg = 10000 grams. (T/F)
   (*d*) The difference between the successor and the predecessor of a given number is 2. (T/F)
   (*e*) The place value of 7 in 27001 is 700. (T/F)
3. Find the product of the place values of 7 in 1,97,047.
4. Write 87 in Roman Numerals.
5. Match the following:

Column I	Column II
(*a*) Roman symbol D stands for	(*i*) 1000 g
(*b*) VX	(*ii*) 0
(*c*) There is no Roman Symbol for	(*iii*) 500
(*d*) 100	(*iv*) Not defined
(*e*) 1 kg	(*v*) C

6. Fill in the blanks:
   (*a*) 1 crore = _____ thousand
   (*b*) 1 million = _____ thousand
   (*c*) 1 km = _____ mm
   (*d*) 1 kg = _____ g
   (*e*) 9 × [2 + 8] = _____

ANSWERS

1. (*a*) THREE (*b*) SIX-DIGIT
   (*c*) DESCENDING (*d*) ASCENDING
   (*e*) NUMERATION (*f*) OPERATION
   (*g*) CRORE (*h*) XXIX
   (*i*) MILLION
2. (a) True (*b*) True (*c*) False
   (*d*) True (*e*) False
3. 49000
4. LXXXVII
5. (*a*) ↔ (*iii*) (*b*) ↔ (*iv*)
   (*c*) ↔ (*ii*) (*d*) ↔ (*v*)
   (*e*) ↔ (*i*)
6. (*a*) 10,000 (*b*) 1000 (*c*) 10,00,000
   (*d*) 1000 (*e*) 90

Test Yourself

1. Write the smallest and the greatest number:
   (*a*) 31594, 31495, 31900, 31945
   (*b*) 10096, 10069, 10209, 10396
2. Arrange the following numbers in ascending order:
   (*a*) 7098, 7089, 7809, 7908
   (*b*) 3825, 3852, 3582, 3528
3. Arrange the following numbers in descending order:
   (*a*) 8080, 8008, 8800, 8801
   (*b*) 6336, 6366, 6363, 3636
4. Write the greatest 5-digit number using different digits with 7 at hundreds place.
5. Write the following number in words:
   (*a*) 7,07,085 (*b*) 34,20,019
6. Write the following numbers in expanded form:
   (*a*) 3,09,938 (*b*) 61,25,708
7. Estimate each sum to the nearest ten:
   (*a*) (57 + 38) (*b*) (43 + 61)
   (*c*) (538 + 270) (*d*) (462 + 182)
8. Estimate each difference to the nearest hundreds:
   (*a*) (678 – 214) (*b*) (7258 – 2429)

9. Estimate each product to the nearest tens:
   (a) 28 × 63 (b) 42 × 75
   (c) 15 × 34 (d) 62 × 58
10. Express each of the numbers in Roman Numerals:
   (a) 73 (b) 91 (c) 475 (d) 341
11. Write each of the following as a Hindu-Arabic numeral:
   (a) LIV (b) XCI
   (c) CCXXIV (d) CCCLXV

MULTIPLE CHOICE QUESTIONS (MCQs)

12. The smallest counting number is
   (a) 0 (b) 1
   (c) 10 (d) none of these
13. The place value of 6 in the numeral 48632950 is
   (a) 60 (b) 632950 (c) 600000 (d) 4860
14. Which of the following is not meaningful?
   (a) VX (b) XV (c) XXV (d) XXXV
15. 1522 when rounded off to the nearest hundreds is
   (a) 1600 (b) 1500
   (c) 1510 (d) none of these
16. 1 crore = how many million?
   (a) 10000 (b) 1000 (c) 100 (d) 10

Fill in the blanks.

17. The estimated value of the sum (267 + 132) to the nearest ten = ...
18. Place value of 7 in 6724 is .....
19. The number just before 10000000 is .....
20. 1 kilogram = ... milligram

ANSWERS

1. (a) Smallest number = 31495
   Greatest number = 31945
   (b) Smallest number = 10069
   Greatest number = 10396
2. (a) 7089, 7098, 7809, 7908
   (b) 3528, 3582, 3825, 3852
3. (a) 8801, 8800, 8080, 8008
   (b) 6366, 6363, 6336, 3636
4. 86732 or any other number with 7 at hundreds place
5. (a) Seven lakh seven thousand eighty-five
   (b) Thirty-four lakh twenty thousand nineteen.
6. (a) 3 × 100000 + 9 × 1000 + 9 × 100 + 3 × 10 + 8
   (b) 6 × 1000000 + 1 × 100000 + 2 × 10000 + 5 × 1000 + 7 × 100 + 8
7. (a) 100 (b) 100 (c) 800 (d) 600
8. (a) 500 (b) 4900
9. (a) 1800 (b) 3200 (c) 600 (d) 3600
10. (a) LXXIII (b) XCI
    (c) CDLXXV (d) CCCXLI
11. (a) 54 (b) 91 (c) 224 (d) 365
12. (b) 13. (c) 14. (a) 15. (b)
16. (d) 17. 400 18. 700
19. 99,99,999 20. 10,00,000.