

Lesson-1 : Numbers and Numeration

Exercise-1

1. (a) 10000 (b) 999999
2. (a) 23,110 (b) 50,544 (c) 68,305 (d) 79,797
(e) 1,38,400 (f) 4,57,708
3. (a) Twenty-seven thousand five hundred thirty-eight
(b) Seven lakh nine thousand one hundred twenty-three
(c) Eighteen thousand six hundred seventy-eight
(d) Three lakh twenty-five thousand one hundred seventy-three
(e) Fifty-four thousand five
(f) Forty-three thousand seven hundred twenty-five

4. (a)

T Th	Th	H	T	O
4	3	3	4	5

→ $5 \times 1 = 5$

→ $4 \times 10 = 40$

→ $3 \times 100 = 300$

→ $3 \times 1000 = 3000$

→ $4 \times 10000 = 40000$

$43,345 = 40,000 + 3,000 + 300 + 40 + 5$

(b)

T Th	Th	H	T	O
6	7	1	9	3

→ $3 \times 1 = 3$

→ $9 \times 10 = 90$

→ $1 \times 100 = 100$

→ $7 \times 1000 = 7000$

→ $6 \times 10000 = 60000$

$67,193 = 60,000 + 7,000 + 100 + 90 + 3$

(c)

L	T Th	Th	H	T	O
1	2	5	3	1	7

→ $7 \times 1 = 7$

→ $1 \times 10 = 10$

→ $3 \times 100 = 300$

→ $5 \times 1000 = 5000$

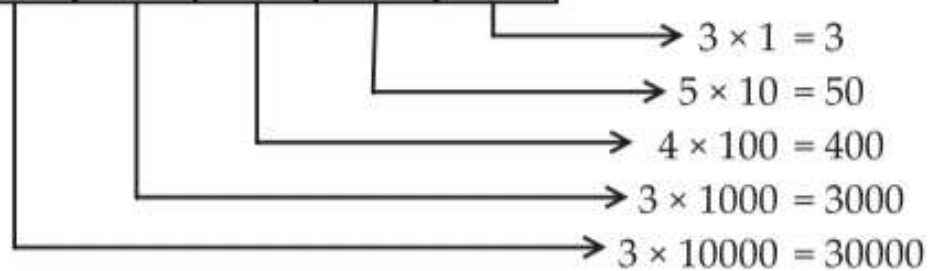
→ $2 \times 10000 = 20000$

→ $1 \times 100000 = 100000$

$1,25,317 = 1,00,000 + 20,000 + 5,000 + 300 + 10 + 7$

(d)

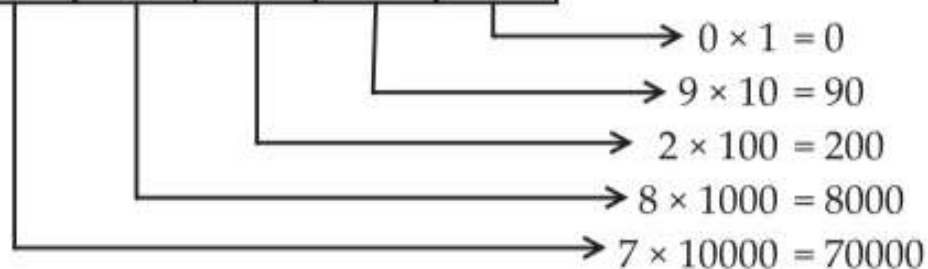
T Th	Th	H	T	O
3	3	4	5	3



$$33,453 = 30,000 + 3,000 + 400 + 50 + 3$$

(e)

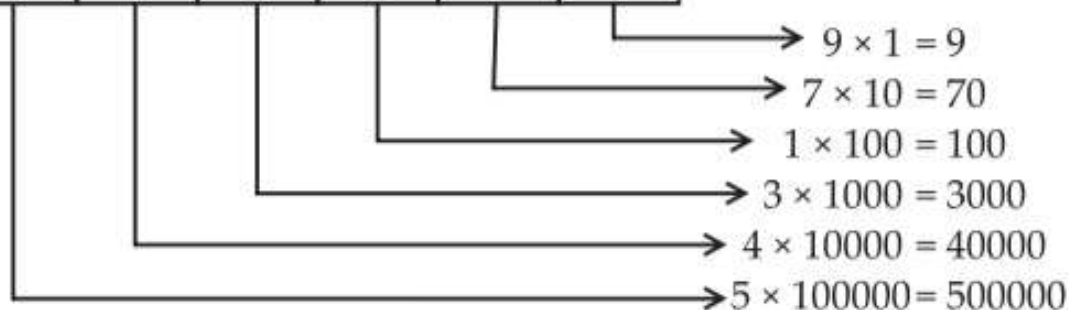
T Th	Th	H	T	O
7	8	2	9	0



$$78,290 = 70,000 + 8,000 + 200 + 90$$

(f)

L	T Th	Th	H	T	O
5	4	3	1	7	9



$$5,43,179 = 5,00,000 + 40,000 + 3,000 + 100 + 70 + 9$$

5. (a) Writing the numbers in the place value chart, we have

T Th	Th	H	T	O
6	⑨	1	2	3
6	⑦	2	9	7

We start from the leftmost place and compare the digits of the two numbers.

Since, 9 thousands > 7 thousands

Thus $69,123 > 67,297$

(b) = (c) < (d) > (e) > (f) >

6. (a) 3,13,472, 3,13,473, 3,13,474, 3,13,475, 3,13,476.

(b) 63,175, 63,176, 63,177, 63,178, 63,179.

- (c) 17,290, 17,291, 17,292, 17,293, 17,294.
 (d) 38,897, 38,898, 38,899, 38,900, 38,901.
7. (a) $7 \times 10000 = 70000$ (b) $9 \times 10 = 90$
 (c) $1 \times 100000 = 100000$ (d) $9 \times 1000 = 9000$
 (e) $6 \times 100 = 600$ (f) $5 \times 1 = 5$
8. (a) $37,293 < 37,923 < 73,293 < 73,923$
 (b) $1,23,456 < 1,23,546 < 1,23,564 < 1,32,456$
9. (a) $43,731 > 43,137 > 34,371 > 34,173$
 (b) $5,64,209 > 5,46,290 > 5,46,209 > 5,46,029$
10. Arranging the digits in ascending order, we get 0, 1, 2, 4, 6, 9. We put 0 at second place from extreme left. So, re-arranging the digits, we get the smallest 6-digit number as **102469**.
 Now, arranging the digits in descending order, we get 9, 6, 4, 2, 1, 0. So, the greatest 6-digit number is **964210**.
11. We know that the place value of a digit increases 10 times as it moves from right to left in the place value chart.
- (a) 1 lakh = 100 thousands
 (b) 10 thousands = 100 hundreds
 (c) 1 lakh = 1000 hundreds
 (d) 1 thousand = 10 hundreds

Fill in the blanks: (Page 14)

1. 10 crore = 100 million 2. 1 crore = 10 million
 3. 10 lakh = 1 million 4. 1 lakh = 100 thousand

Exercise-2

1. (a) Four lakh eighty-three thousand seven hundred forty-five
 (b) Twelve lakh thirty-six thousand three hundred fifty-six
 (c) Thirty-eight lakh fifty-six thousand nine hundred eighty-nine
 (d) Two crore twenty-five lakh thirty-seven thousand one hundred eighty-eight
 (e) Five crore sixty-seven lakh thirty-three thousand eight hundred eighty-eight
 (f) Fifty-three crore forty-nine lakh thirty-eight thousand one hundred twenty-five
2. (a) Two million eight hundred ninety-six thousand four hundred fifty
 (b) Five million three hundred thousand six hundred forty-nine
 (c) Forty million five hundred thousand one hundred seventy-nine
 (d) Ninety-eight million two hundred fifty-six thousand one hundred eighty-eight

- (e) One hundred twenty-three million four hundred fifty-three thousand five hundred thirty-six
- (f) Two hundred fifty-six million five hundred forty-five thousand one hundred ninety-eight
3. (a) 2,743,149 (b) 7,05,47,505 (c) 56,55,54,532
(d) 22,240,783 (e) 71,86,47,105 (f) 105,004,999
4. We know that the ones period has three places whereas the thousands, lakhs and crores periods have two places each in Indian place value system. Rewriting the numbers in the Indian system, we get
(a) 38,91,402 (b) 4,21,87,005 (c) 6,72,10,200 (d) 70,00,274
(e) 14,95,31,030 (f) 9,79,99,897
5. Each period has 3 places in International system.
(a) 812,415 (b) 1,503,469 (c) 7,347,149 (d) 8,573,111
(e) 111,223,345 (f) 192,343,560
6. **In figures :** 99,99,99,999
In words : Ninety-nine crore ninety-nine lakh ninety-nine thousand nine hundred ninety-nine
7. Hundreds digit = 2
Ten thousands digit = 7
Ones digit = $7 - 1 = 6$
Hundred thousands digit = $2 \times 2 = 4$
Ten millions digit = Half of 6 = 3
Millions digit = $6 + 2 = 8$
Tens digit = $3 \times 3 = 9$
Thousands digit = $4 - 3 = 1$
So, the required number is 38,471,296.

Exercise-3

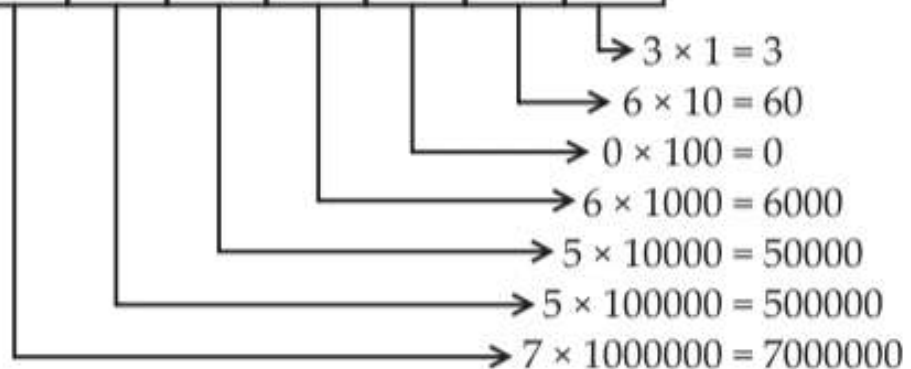
1. (a) $3 \times 10000 = 30000$ (b) $4 \times 1000000 = 4000000$
(c) $6 \times 10000000 = 60000000$ (d) $0 \times 1000000 = 0$
(e) $7 \times 100000 = 700000$ (f) $5 \times 1000 = 5000$
2. Place value of 8 at the thousands place = $8 \times 1000 = 8000$
Place value of 8 at the ones place = 8
Their difference = $8000 - 8 = 7992$
3. Place value of 9 at the ones place = $9 \times 1 = 9$
Place value of 9 at the hundreds place = $9 \times 100 = 900$
Place value of 9 at the thousands place = $9 \times 1000 = 9000$
Their sum = $9 + 900 + 9000 = 9909$.
4. The face value of 7 is 7.

The place value of 7 in 33,15,703 = $7 \times 100 = 700$

Product of face value and place value of 7 = $7 \times 700 = 4900$

5. (a)

T C	C	T L	L	T Th	Th	H	T	O
		7	5	5	6	0	6	3



So, 75,56,063 = $70,00,000 + 5,00,000 + 50,000 + 6,000 + 60 + 3$

(b) $9 \times 1 = 9,$

$8 \times 10 = 80,$

$1 \times 100 = 100,$

$2 \times 1000 = 2000,$

$8 \times 10000 = 80000,$

$5 \times 100000 = 500000,$

$3 \times 1000000 = 3000000$

So, 35,82,189 = $30,00,000 + 5,00,000 + 80,000 + 2,000 + 100 + 80 + 9$

(c) $9 \times 1 = 9$

$8 \times 10 = 80$

$9 \times 100 = 900$

$7 \times 1000 = 7000$

$1 \times 10000 = 10000$

$5 \times 100000 = 500000$

$3 \times 1000000 = 3000000$

$2 \times 10000000 = 20000000$

$1 \times 100000000 = 100000000$

So, 12,35,17,989 = $10,00,00,000 + 2,00,00,000 + 30,00,000$
 $+ 5,00,000 + 10,000 + 7,000 + 900 + 80 + 9$

(d) $3 \times 1 = 3$

$3 \times 10 = 30$

$6 \times 100 = 600$

$2 \times 1000 = 2000$

$1 \times 10000 = 10000$

$1 \times 100000 = 100000$

$8 \times 1000000 = 8000000$

So, 81,12,633 = $80,00,000 + 1,00,000 + 10,000 + 2,000 + 600 + 30 + 3$

(e) $3 \times 1 = 3$

$9 \times 10 = 90$

$8 \times 100 = 800$

$7 \times 1000 = 7000$

$1 \times 10000 = 10000$

$5 \times 100000 = 500000$

$3 \times 1000000 = 3000000$

$8 \times 10000000 = 80000000$

$2 \times 100000000 = 200000000$

So, 28,35,17,893 = $20,00,00,000 + 8,00,00,000 + 30,00,000$
 $+ 5,00,000 + 10,000 + 7,000 + 800 + 90 + 3$

(f) $1 \times 1 = 1$

$3 \times 10 = 30$

$6 \times 100 = 600$

$5 \times 1000 = 5000$

$4 \times 10000 = 40000$

$8 \times 100000 = 800000$

$7 \times 1000000 = 7000000$

$6 \times 10000000 = 60000000$

So, 6,78,45,631 = $6,00,00,000 + 70,00,000 + 8,00,000 + 40,000$
 $+ 5,000 + 600 + 30 + 1$

6. (a)

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

The number is 8,76,54,321.

(b)

T C	C	T L	L	T Th	Th	H	T	O
1		2		3		4		5
1	0	2	0	3	0	4	0	5

Writing zero in blank spaces
No digit in blank spaces

The number is 10,20,30,405.

- (c) 69,15,465 (d) 7,80,40,203 (e) 10,40,20,707 (f) 87,53,044

Exercise-4

- (a) Predecessor = 7,861,069 Successor = 7,861,071

(b) Predecessor = 11,257,889 Successor = 11,257,891

(c) Predecessor = 18,251,199 Successor = 18,251,201

(d) Predecessor = 91,81,87,998 Successor = 91,81,88,000

(e) Predecessor = 6,789,988 Successor = 6,789,990

(f) Predecessor = 59,69,79,898 Successor = 59,69,79,900
- (a) > (b) > (c) < (d) <
- (a) 21,15,005 < 21,15,500 < 21,51,005 < 21,51,500

(b) 5,039,563 < 5,093,563 < 5,390,563 < 5,903,563

(c) 11,12,13,145 < 11,12,31,145 < 11,12,31,154 < 11,21,13,145

(d) 89,345,120 < 89,435,120 < 98,345,120 < 98,543,120
- (a) 43,600,879 > 43,600,789 > 43,060,789 > 43,006,789

(b) 7,431,865 > 7,413,865 > 7,314,865 > 7,134,865

(c) 12,28,53,989 > 12,28,35,989 > 11,82,35,989 > 11,28,35,989

(d) 61,82,14,911 > 61,82,14,712 > 61,82,14,217 > 61,82,14,119

Exercise-5

- (a) Arranging the digits in ascending order, we get 0, 1, 2, 3, 4, 5, 7.
So, the smallest 7-digit number is **1023457**, as we do not write 0 at the leftmost place.
Arranging the digits in descending order, we get 7, 5, 4, 3, 2, 1, 0.
So, the greatest 7-digit number is **7543210**.

(b) The smallest 7-digit number is **2345789**.
The greatest 7-digit number is **9875432**.
- (a) Arranging the digits in descending order, we get 9, 8, 5, 4, 3, 0.
Here, the greatest digit is 9, so we shall repeat it to make the greatest number. The greatest 7-digit number is **9985430**.
Arranging the digits in ascending order, we get 0, 3, 4, 5, 8, 9.
Here, the smallest digit is 0, so, we shall repeat it to make the smallest number. The smallest 7-digit number is **3004589**.

(b) The greatest 7-digit number is **8876321**.

The smallest 7-digit number is **1123678**.

3. Arranging the digits in ascending order, we get 0, 1, 3, 4, 7, 9. Here, the smallest digit is 0, so, we shall repeat it to make the smallest number. The smallest 7-digit number is **1003479**.

Arranging the digits in descending order, we get 9, 7, 4, 3, 1, 0. Here, the greatest digit is 9, so, we shall repeat it to make the greatest number. The greatest 7-digit number is **9974310**.

Exercise-6

1. (a) The ones digit is 5, so 75 is rounded off to 80.
(b) The ones digit $9 > 5$, so 39 is rounded off to 40.
(c) The ones digit $1 < 5$, so 291 is rounded off to 290.
(d) The ones digit $7 > 5$, so 357 is rounded off to 360.
(e) The ones digit $7 > 5$, so 927 is rounded off to 930.
(f) The ones digit $9 > 5$, so 819 is rounded off to 820.
(g) The ones digit $4 < 5$, so 1234 is rounded off to 1230.
(h) The ones digit $2 < 5$, so 3572 is rounded off to 3570.
2. (a) The tens digit $6 > 5$, so 464 is rounded off to 500.
(b) The tens digit $1 < 5$, so 917 is rounded off to 900.
(c) The tens digit $8 > 5$, so 383 is rounded off to 400.
(d) The tens digit $1 < 5$, so 5118 is rounded off to 5100.
(e) The tens digit $8 > 5$, so 8989 is rounded off to 9000.
(f) The tens digit $3 < 5$, so 12538 is rounded off to 12500.
(g) The tens digit $7 > 5$, so 18979 is rounded off to 19000.
(h) The tens digit $6 > 5$, so 71364 is rounded off to 71400.
3. (a) The hundreds digit $2 < 5$, so 7238 is rounded off to 7000.
(b) The hundreds digit $3 < 5$, so 6398 is rounded off to 6000.
(c) The hundreds digit $7 > 5$, so 7711 is rounded off to 8000.
(d) The hundreds digit $6 > 5$, so 9659 is rounded off to 10000.
(e) The hundreds digit $7 > 5$, so 10743 is rounded off to 11000.
(f) The hundreds digit $6 > 5$, so 12671 is rounded off to 13000.
(g) The hundreds digit $7 > 5$, so 45718 is rounded off to 46000.
(h) The hundreds digit $9 > 5$, so 999978 is rounded off to 1000000.
4. (a) 1861

Rounding off to the nearest tens :

The ones digit $1 < 5$, so 1861 is rounded off to 1860.

Rounding off to the nearest hundreds :

The tens digit $6 > 5$, so 1861 is rounded off to 1900.

Rounding off to the nearest thousands :

The hundreds digit $8 > 5$, so 1861 is rounded off to 2000.

(b) 2784

Rounding off to the nearest tens :

The ones digit $4 < 5$, so 2784 is rounded off to 2780.

Rounding off to the nearest hundreds :

The tens digit $8 > 5$, so 2784 is rounded off to 2800.

Rounding off to the nearest thousands :

The hundreds digit $7 > 5$, so 2784 is rounded off to 3000.

(c) 98727

Rounding off to the nearest tens :

The ones digit $7 > 5$, so 98727 is rounded off to 98730.

Rounding off to the nearest hundreds :

The tens digit $2 < 5$, so 98727 is rounded off to 98700.

Rounding off to the nearest thousands :

The hundreds digit $7 > 5$, so 98727 is rounded off to 99000

Fun Time

Planet	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune
Diameter (in km)	48780	12104	12756	6787	142796	120660	51118	48600
Diameter (rounded off to the nearest thousands)	49000	12000	13000	7000	143000	121000	51000	49000

Mental Maths Corner

1. 90876054 2. crores 3. 90807070
4. Place value of 2 in 618,084,230 = 200
Place value of 3 in 618,084,230 = 30
Product of place values of 2 and 3 = $200 \times 30 = 6000$
5. 1002345 (To make the smallest number using different digits, we choose digits 0,1,2,3,4 and 5)

Review Exercise

1. (a) Six crore thirty-five lakh fifteen thousand four hundred twenty
(b) Eighty-eight crore seventy-two lakh seventeen thousand one hundred fifteen

2. (a) Eight million two hundred fifty-eight thousand one hundred seventeen
 (b) Ninety-eight million one hundred seventy-eight thousand four hundred fifty-five
3. (a) 2,79,04,057 (b) 72,629,891

4. (a)

C	TL	L	TTh	Th	H	T	O
4	6	3	0	0	3	5	7
TM	M	HTh	TTh	Th	H	T	O

Forty-six million three hundred thousand three hundred fifty-seven

(b)

TC	C	TL	L	TTh	Th	H	T	O
6	8	7	0	8	4	0	1	2
HM	TM	M	HTh	TTh	Th	H	T	O

Six hundred eighty-seven million eighty-four thousand twelve

5. The place value of 3 at the tens place = $3 \times 10 = 30$
 The place value of 3 at the thousands place = $3 \times 1000 = 3000$
 Their difference = $3000 - 30 = 2970$
6. (a) Eleven crore twenty-three lakh seventy-two thousand nine hundred seventy-two
 (b) In figures : 112,372,972
 In words : One hundred twelve million three hundred seventy-two thousand nine hundred seventy-two
7. Thirteen crore forty-six lakh eighty-nine thousand three hundred fifty-seven

Brain Teaser

1. We have to write the smallest and greatest 9-digit numbers using three different digits.
 For smallest number, the digits are 0, 1 and 2.
 Here, the smallest digit is 0, so we shall repeat it 7 times.
 The smallest 9-digit number = **100000002**
 For greatest number, the digits are 7, 8 and 9.
 Here, the greatest digit is 9, so, we shall repeat it 7 times.
 So, the greatest 9-digit number = **999999987**
2. The smallest 8-digit odd number is 10000001.