FLASHBACK

Revision

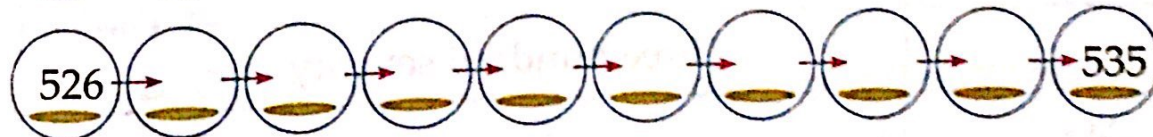**1** What am I?

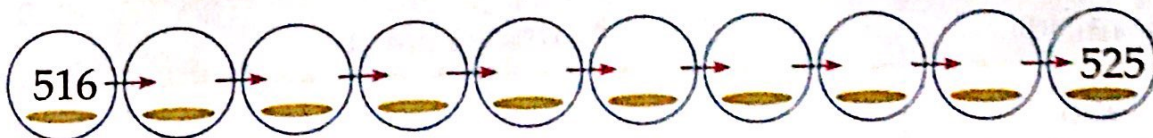(a) I am the smallest one digit number.

(b) I am the smallest three digit number.
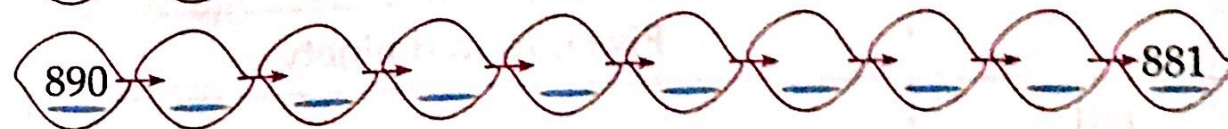
(c) I come between 299 and 301.

(d) I am one less than 999.

(e) I am the successor of 789.

2 Write the missing numbers from 516 to 535.

516 → → → → → → → → → 525

526 → → → → → → → → → 535

3 Write the missing numbers from 900 to 881 by counting backward.

900 → → → → → → → → → 891

890 → → → → → → → → → 881
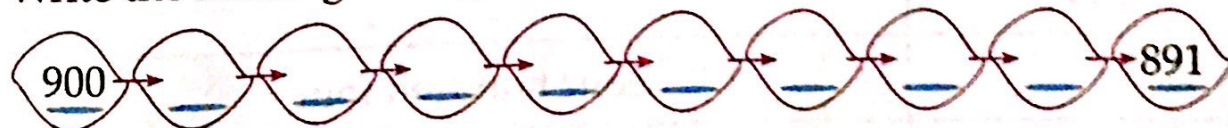
4 Fill in the missing numbers.

665 → → → 669 → → → 673 →

5 Expand the following. (One has been done for you)

(a) 943 = __9__ hundreds + __4__ tens + __3__ ones

(b) 637 = _____ hundreds + _____ tens + _____ ones

(c) 562 = _____ hundreds + _____ tens + _____ ones

(d) 329 = _____ hundreds + _____ tens + _____ ones

6 Write the place value of underlined digits in each of the following

(a) 4<u>2</u>7 _____ (b) <u>1</u>98 _____ (c) 89<u>6</u> _____ (d) 6<u>5</u>3 _____

7 Write the missing numbers in the following series.

(a) 633, _____, _____, _____, _____, _____, 639

(b) 199, _____, _____, _____, _____, _____, 205

8 Complete the table.

Number	Number Name
456	
	Three hundred seventy one
245	
799	
	Four hundred four
	Five hundred ninety
651	
	Eight hundred twenty nine

Fill in the blanks.

(a) The place value of 5 in 572 is 5 hundreds or _____.

(b) The reduced form of 800 + 20 + 7 is _____.

(c) The number that comes between 729 and 731 is _____.

(d) The place value of _____ in 198 is 9 tens or 90.

(e) The number that comes just after 399 is _____.

10 Add the following.

(a)
```
  1 7
+ 1 7
-----
```

(b)
```
  1 4
+ 1 4
-----
```

(c)
```
  4 5
+ 4 3
-----
```

(d)
```
  2 6
+ 2 6
-----
```

(e)
```
  4 0
+ 3 9
-----
```

(f)
```
  2 4
+ 2 4
-----
```

(g)
```
  1 6
+ 1 8
-----
```

(h)
```
  1 6
+ 1 6
-----
```

11 Subtract the following.

(a)
```
  7 8
- 3 5
-----
```

(b)
```
  5 2
- 2 4
-----
```

(c)
```
  2 6
- 1 8
-----
```

(d)
```
  4 8
- 1 6
-----
```

(e)
```
  9 2
- 5 4
-----
```

(f)
```
  8 7
- 1 6
-----
```

(g)
```
  7 6
- 5 7
-----
```

(h)
```
  4 8
- 2 9
-----
```

12 (a) What comes just before:

	99
	289
	316
	178

(b) What comes just after:

79	
789	
200	
336	

13 Write the greatest and the smallest 3-digit numbers formed by us given digits:

Digits	Greatest number	Smallest number
(a) 9, 5, 4		
(b) 1, 8, 7		
(c) 3, 9, 6		
(d) 4, 0, 3		

1 4-digit Numbers

We have learnt about 2-digit and 3-digit numbers.

- Two digit numbers have tens and ones.
- Three digit numbers have hundreds, tens and ones.
- The smallest three digit number is 100.
- The largest three digit number is 999.

We know that the largest 3-digit number is 999, but what happens if we add 1 to it? 999 + 1. We write it as follows:

| Thousands	Hundreds	Tens	Ones
	9	9	9
+			1
1	0	0	0

Thus, 1000 is the first four digit number.

- We write 1000 in words as one thousand.

- In the place value chart, the fourth place from the right is called the thousands place.

- The smallest four-digit number is 1000.

- It is equal to ten hundreds. Thus, ten hundreds = 1 thousand.

Reading 4-digit Numbers

We take a 4-digit number such as 2394.

Thousands	Hundreds	Tens	Ones
2	3	9	4

2 thousands = 2000	3 hundreds = 300	9 tens = 90	4 ones = 4
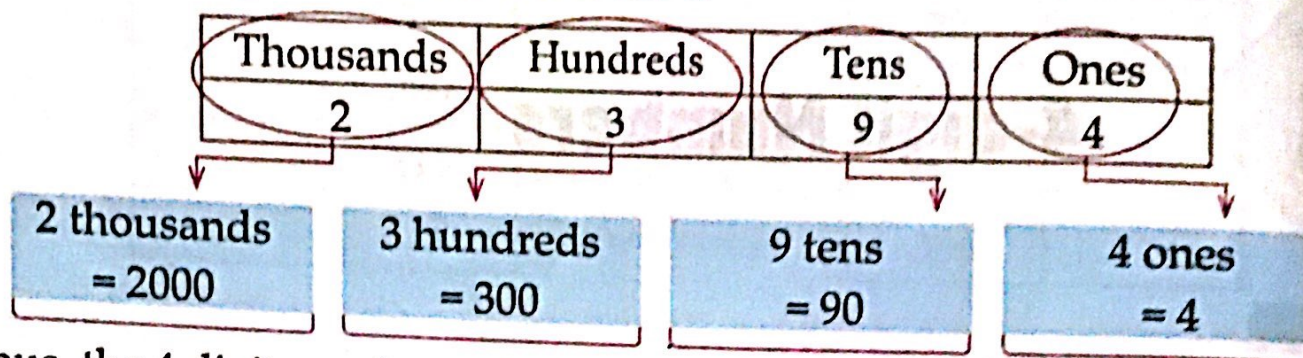
Thus, the 4 digit number 2394 is read as:

Two thousand three hundred ninety-four

Some more examples

Number	Number Name	Th	H	T	O
1001	One thousand one	1	0	0	1
1002	One thousand two	1	0	0	2
1003	One thousand three	1	0	0	3
⋮	⋮	⋮	⋮	⋮	⋮
1999	One thousand nine hundred ninety-nine	1	9	9	9
2000	Two Thousand	2	0	0	0
2001	Two thousand one	2	0	0	1
⋮	⋮	⋮	⋮	⋮	⋮
3000	Three Thousand	3	0	0	0
⋮	⋮	⋮	⋮	⋮	⋮
4000	Four thousand	4	0	0	0
⋮	⋮	⋮	⋮	⋮	⋮
9999	Nine thousand nine hundred ninety-nine	9	9	9	9

The largest 4-digit number is 9999.

Let's Try

Example 1: Write the number names of the following.

    (a) 2564   (b) 1489   (c) 8720   (d) 1065

Solution: (a) 2564: Two thousand five hundred sixty-four

    (b) 1489: One thousand four hundred eighty-nine

    (c) 8720: Eight thousand seven hundred twenty

    (d) 1065: One thousand sixty-five

Example 2: Write the numerals for each of the following.

    (a) Five thousand nine hundred three

    (b) One thousand eight hundred sixty-two

    (c) Seven thousand seven hundred eighty

    (d) Four thousand one

Solution: (a) Five thousand nine hundred three = 5903

    (b) One thousand eight hundred sixty-two = 1862

    (c) Seven thousand seven hundred eighty = 7780

    (d) Four thousand one = 4001

EXERCISE 1A

1 Write the numerals for each of the following.

  (a) Four thousand two hundred ninety-one   _____

  (b) Six thousand five hundred three   _____

  (c) One thousand one hundred eleven   _____

(d) Nine thousand two hundred

(e) Eight thousand six hundred forty-three

(f) Three thousand nine hundred four

2 Write the number names of the following.

(a) 7498 _____

(b) 3523 _____

(c) 6525 _____

(d) 4569 _____

(e) 9175 _____

(f) 4226 _____

3 Write the number for each of the following.

(a) 1 thousand + 3 hundreds + 9 tens + 5 ones = _____

(b) 2 thousands + 0 hundreds + 3 tens + 2 ones = _____

(c) 7 thousands + 3 hundreds + 7 tens + 9 ones = _____
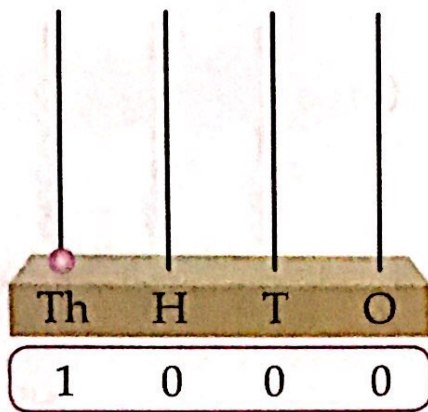
(d) 6 thousands + 7 hundreds + 6 tens + 8 ones = _____

(e) 3 thousands + 6 hundreds + 1 ten + 6 ones = _____

(f) 9 thousands + 9 hundreds + 9 tens + 4 ones = _____

4-digit Numbers on Abacus

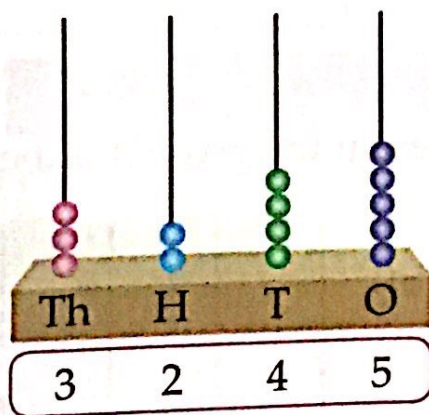A 4-digit number '1000' is represented on abacus as follows:

In ones place there is no bead which represents 0 ones.

In tens place also there is no bead that represents 0 tens.

In hundreds place also there is no bead that represents 0 hundreds.

In thousands place there is only one bead that represents 1 thousand.

Similarly, 3245 is represented on abacus as follows:

In ones place there are five beads that represent 5 ones.

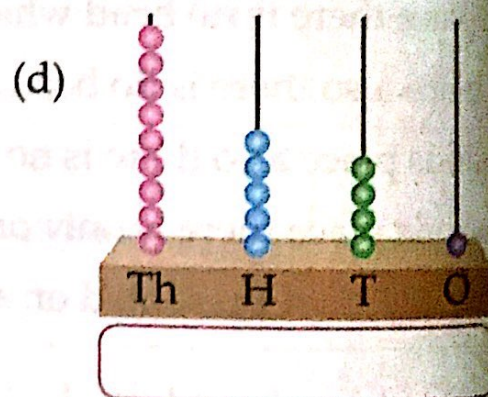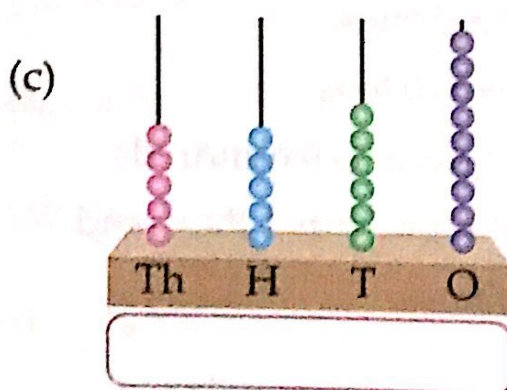In tens place there are four beads that represent 4 tens.
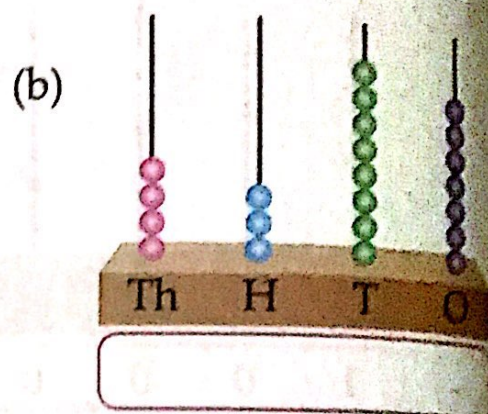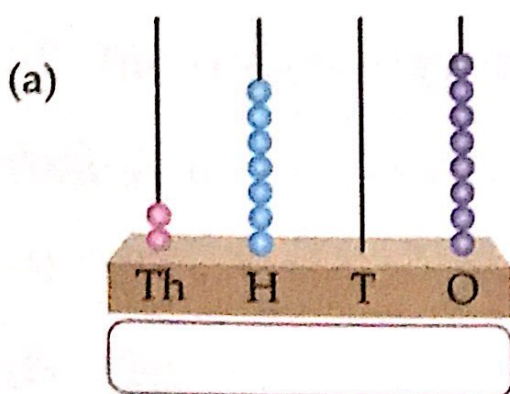
In hundreds place there are two beads that represent 2 hundreds.

In thousands place there are three beads that represent 3 thousands.

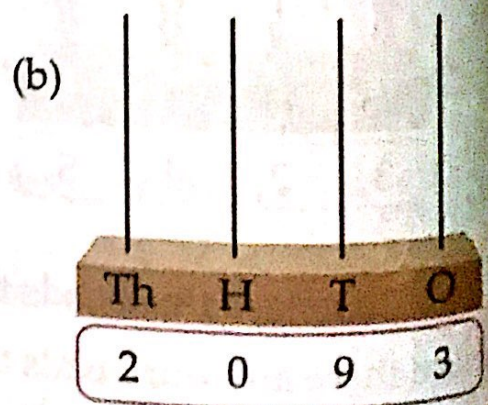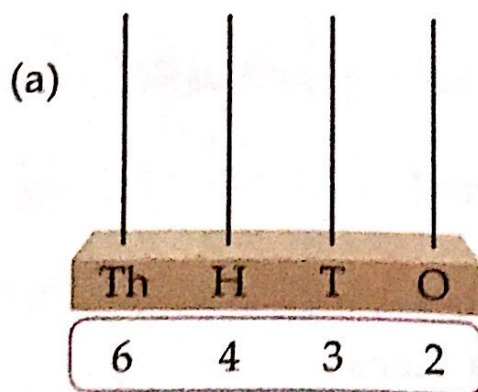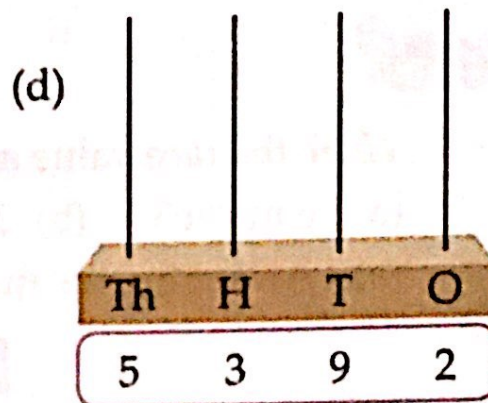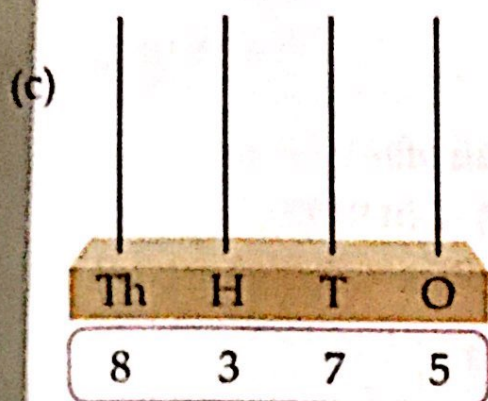**1** Write the number shown by each abacus.

(a)

Th H T O

(b)

Th H T O

(c)

Th H T O

(d)

Th H T O

2 Draw the beads on each abacus to represent the given number.

(a)

Th H T O

| 6 | 4 | 3 | 2 |

(b)

Th H T O

| 2 | 0 | 9 | 3 |

(c)

Th	H	T	O
8	3	7	5

(d)

Th	H	T	O
5	3	9	2

Face Value of a Digit in a Number

The face value of a digit in a number is the value of the digit itself at whatever place it may be.

> Face Value is the actual value of a digit.

In 7945, face value of 7 is 7, face value of 9 is 9, face value of 4 is 4 and face value of 5 is 5.

Place Value of a Digit in a Number

Place Value is the value of a digit based on its position (place) in the given number.

> Place value of a digit = Face value × Position value

Now, look at the number 7945

Digits	7	9	4	5
Face Value	7	9	4	5
Position Value	Thousands 1000	Hundreds 100	Tens 10	Ones 1
Place value	7000	900	40	5

Remember!

● The face value and the place value of 0 is always 0, wherever it may be in the number.

Let's Try

Example: Write the face value and place value of:

(a) 6 in 9863   (b) 3 in 3785   (c) 1 in 9192

Solution: (a) Arranging the number in the place value chart, we get

Th	H	T	O
9	8	6	3

Thus, the face value of 6 is 6 and the place value is 6 tens or 60.

(b) Arranging the number in the place value chart, we get

Th	H	T	O
3	7	8	5

Thus, the face value of 3 is 3 and the place value is 3 thousands or 3000.

(c) Arranging the number in the place value chart, we get

Th	H	T	O
9	1	9	2

Thus, the face value of 1 is 1 and the place value is 1 hundred or 100.

Expanded Form

The digits of a number can be expanded into its place value form and written in the form of addition statement. This is called as expanded form of the number.

Let us write the expanded form of a number 7945

Th	H	T	O
7	9	4	5

7945 = 7 thousands + 9 hundreds + 4 tens + 5 ones = 7000 + 900 + 40 + 5

The opposite of expanded form is short form. Thus, the short form of 6000 + 300 + 20 + 4 = 6324.

Let's Try

Example: Write the following in short form:

(a) 8000 + 700 + 50 + 6

(b) 6000 + 300 + 4

(c) 3000 + 50 + 1

Solution: (a) 8000 + 700 + 50 + 6

= 8756

(b) 6000 + 300 + 4

= 6304

(c) 3000 + 50 + 1

= 3051

Successor of a Number

The number that comes just after a particular number is called its successor. Thus, a successor of a number is always 1 more than the number.

We add 1 to the number to get its successor.

For example, successor of 1356 is 1357.

The successor of 4563 is 4564.

The successor of 2351 is 2352 and so on.

Predecessor of a Number

The number that comes just before a particular number is called its predecessor. Thus, a predecessor of a number is always 1 less than the number. We subtract 1 from the number to get its predecessor.

For example, predecessor of 1234 is 1233.

The predecessor of 2377 is 2376.

The predecessor of 1989 is 1988 and so on.

Remember!

- Zero has no predecessor.
- A number has only one successor and one predecessor.

Let's Try

Example: Write:

(a) the predecessor of 6545

(b) the successor of 8088

(c) the predecessor of 7360.

Solution: (a) the predecessor of 6545 is 6544.

(b) the successor of 8088 is 8089.

(c) the predecessor of 7360 is 7359.

Skip Counting

When we count or write numbers after skipping a fixed gap between two successive numbers, it is called skip counting. For example, counting by 2's means there is a gap of two numbers between two successive numbers. Similarly, counting by 10's means there is a gap of ten numbers between two successive numbers.

Skip Counting in 2's

1123	1125	1127	1129	1131	1133	1135	1137	1139	1141

Skip Counting in 10's

2445	2455	2465	2475	2485	2495	2505	2515	2525	2535

66

Let's Try

Example: Counting by 20's, write 5 numbers from 3918 onwards.

Solution: Starting from 3918, the required numbers are

3938, 3958, 3978, 3998, 4018.

Comparing Numbers

When the number of digits are different

Let us compare 996 and 1039.

Th	H	T	O
	9	9	6	→ 3-digit number
1	0	3	9	→ 4-digit number

The number with more digits is always greater.

Thus, 1039 > 996

When the number of digits are same

Rule 1: Compare the digits in the thousands place. Let us compare 2256 and 1956.

Th	H	T	O
2	2	5	6
1	9	5	6

2 > 1

So, 2256 > 1956

Rule 2: If the digits in the thousands place are same, compare the digits in the hundreds place. Let us compare 4056 and 4213.

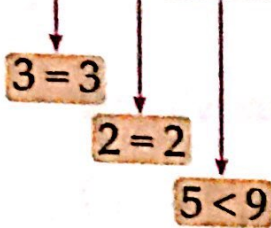| Th	H	T	O
4	0	5	6
4	2	1	3

4 = 4

0 < 2

So, 4056 < 4213

Rule 3: If the digits in the thousands place and the hundreds place are the same, compare the digits in the tens place. Let us compare 3250 and 3290.
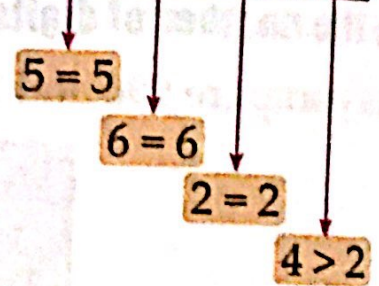
Th	H	T	O
3	2	5	0
3	2	9	0

3 = 3

2 = 2

5 < 9

So, 3250 < 3290

Rule 4: If the digits in the thousands, hundreds and tens place are same, compare the digits in the ones place. Let us compare 5624 and 5622.
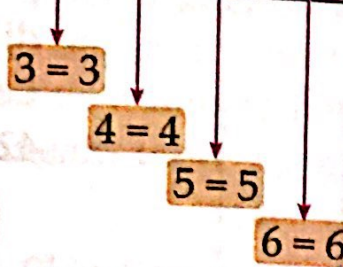
Th	H	T	O
5	6	2	4
5	6	2	2

5 = 5

6 = 6

2 = 2

4 > 2

So, 5624 > 5622

Rule 5: If the digits at all places are same, the numbers are equal. Let us compare 3456 and 3456.

Th	H	T	O
3	4	5	6
3	4	5	6

3 = 3

4 = 4

5 = 5

6 = 6

So, 3456 = 3456

Ascending and Descending Order

When we arrange the numbers from the smallest to the greatest, the numbers are in ascending order. Let us take the numbers 3225, 6324 and 9568.

First we put these numbers in place value chart and then compare the numbers.

Th	H	T	O
3	2	2	5
6	3	2	4
9	5	6	8

3 < 6 < 9

Therefore, 3225 is the smallest number and 9568 is the greatest number.

Hence, the numbers in ascending order are 3225 < 6324 < 9568.

When we arrange the numbers from the greatest to the smallest, the numbers are in descending order. Let us take the numbers 3625, 5679 and 3735.

First we put numbers in place value chart and then compare them.

Th	H	T	O
3	6	2	5
5	6	7	9
3	7	3	5

Th	H	T	O
3	6	2	5
3	7	3	5

3 = 3

3 < 5

So, 5679 is the greatest.

6 < 7

So, 3625 < 3735

Hence, the numbers in descending order are 5679 > 3735 > 3625.

Let's Try

Example: Rewrite the following numbers first in ascending order and then in descending order:

4538, 4927, 5132, 2839, 1003

Ascending order ☐ → ☐ → ☐ → ☐ → ☐

Descending order ☐ → ☐ → ☐ → ☐ → ☐

Solution: First we put the numbers in place value chart.

On comparing the numbers we get

1003 < 2839 < 4538 < 4927 < 5132

Thus, in ascending order the numbers can be written as

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

1003 → 2839 → 4538 → 4927 → 5132

and in descending order the numbers can be written as
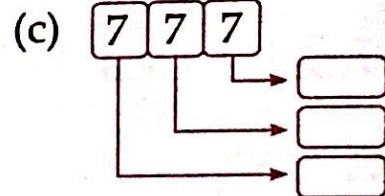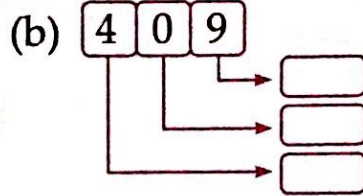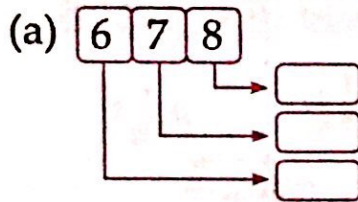
5132 → 4927 → 4538 → 2839 → 1003

69

1 Write the place value and face value of 8 in 3869.

2 Write the place value and face value of 0 in 9012.

3 Write the place value of the digits given below.

(a) 6 7 8

(b) 4 0 9

(c) 7 7 7

4 Write each of the following numbers in expanded form.

(a) 2098　　(b) 3189　　(c) 9715　　(d) 9876　　(e) 7432

5 Write the following in short form.

(a) 6000 + 800 + 30 + 4　(b) 4000 + 90 + 1　(c) 8000 + 500 + 30 + 4

(d) 1000 + 800 + 9　　(e) 5000 + 600 + 70 + 3

6 Fill in the blanks using >, < or =.

(a) 1525 _____ 2510

(b) 3515 _____ 5315

(c) 3815 _____ 3518

(d) 4637 _____ 4763

(e) 2145 _____ 2415

(f) 5001 _____ 5001

7 Arrange the following numbers in ascending order.

(a) 4273, 3583, 4219, 7518

(b) 3625, 4368, 1458, 1225

(c) 4210, 2509, 3678, 6250

8 Arrange the following numbers in descending order.

(a) 6215, 7013, 2158, 4216   (b) 4329, 3576, 2518, 5250

(c) 3259, 2852, 5719, 6053

9 Write the successor of:

(a) 5345   (b) 7032

10 Write the predecessor of:

(a) 2352   (b) 6543

11 Circle the greatest number.

(a) 4398 2078 2068 8234   (b) 7461 7098 7762 6324

12 Circle the smallest number.

(a) 3211 7443 2131 2375   (b) 6132 2001 4300 1232

13 Fill in the missing numbers and complete the number grid.

1001		1003						
	1012							
			1025			1028		
		1033						
			1044			1047		

REVIEW EXERCISE

1. Write the place value and face value of 0 in 3014.

2. Arrange the following in ascending order:
   1354, 2348, 3102, 1003

3. Arrange the following in descending order:
   1035, 5034, 3210, 1001 _____

4. Write the given numbers in expanded form:
   (a) 7036 = _____   (b) 8001 = _____

ACTIVITY

Objective: To build the concept of place value in 4-digit numbers.

Materials Required: Glazed paper strips— red, blue, green and yellow.

Procedure:

1. Cut shapes and write numbers—triangles from red coloured glaze paper, circles from blue coloured glaze paper, squares from green coloured glaze paper and rectangles from yellow coloured glaze paper as shown.
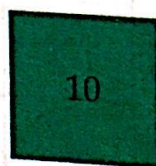
2. The teacher will write a 4-digit number on the board. For example, 314? The students will form the numbers by pasting different shapes.
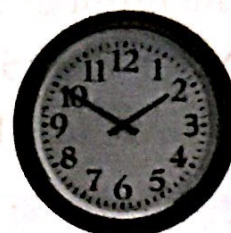
2 Roman Numbers

- Have you ever seen a clock like clock A?
- How are these symbols different from the numbers in clock B?
- Can you tell the time in these clocks?

Clock A   Clock B

We have used the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 to write any number previously. This is known as Hindu-Arabic number system.

In Roman number system, we use 7 letters of the alphabet to write all the Hindu-Arabic numbers.

Roman Numbers	I	V	X	L	C	D	M
Value in Hindu-Arabic Numbers	1	5	10	50	100	500	1000

We can use combination of these seven letters to make different numbers from 1 to 39 but certain rules are to be followed:

Rule 1: I, X, C and M can be repeated up to three times. The number so formed is their sum. For example,

III = 1 + 1 + 1 = 3, XX = 10 + 10 = 20

Rule 2: V, L and D are never repeated.

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

VI = 5 + 1 = 6

XXII = 10 + 10 + 1 + 1 = 22

XI = 10 + 1 = 11

VII = 5 + 1 + 1 = 7

$$XII = 10 + 1 + 1 = 12$$
$$XXXVII = 10 + 10 + 10 + 7 = 37$$
$$VIII = 5 + 1 + 1 + 1 = 8$$

$$XV = 10 + 5 = 15$$
$$XIII = 10 + 1 + 1 + 1 = 13$$

Rule 4: When we write a smaller Roman number before a greater Roman number, their values are subtracted. For example,

$$IV = 5 - 1 = 4$$
$$IX = 10 - 1 = 9$$

Rule 5: A smaller number between two greater numbers gets subtracted from the number on its right. For example,

$$XIV = 10 + (5 - 1) = 14$$
$$XIX = 10 + (10 - 1) = 19$$
$$XXIX = 10 + 10 + (10 - 1) = 29$$

Remember!

- ✖ 4 is never written as IIII.
- ✖ There is no symbol for zero in Roman number system.
- ✖ There is no concept of place value in Roman number system.

Some Roman numbers with their corresponding Hindu-Arabic numbers are given below.

1	2	3	4	5	6	7	8	9	10
I	II	III	IV	V	VI	VII	VIII	IX	X
11	12	13	14	15	16	17	18	19	20
XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX

EXERCISE 2

1 Write the Hindu-Arabic numbers shown by the Roman numbers.

(a)

I	V	X	L	C	D	M

(b)	IV	VI	VII	IX	XI	XII	XIV

(c)	II	III	XX	XXX	CC	CCC

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

(a) 4   (b) 26   (c) 15   (d) 13   (e) 33

(f) 11   (g) 30   (h) 18   (i) 7   (j) 29

3 Which of the following are meaningless?
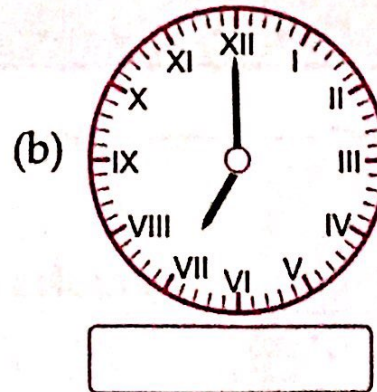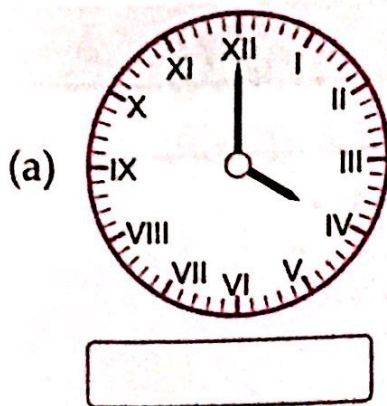
(a) VV   (b) XIIII   (c) XXIV   (d) IXVI   (e) XIX

4 Fill in the place holders with > or <.

(a) 34 ☐ XXXV   (b) XXIX ☐ 20

(c) IX ☐ 11   (d) XXXIV ☐ 39

5 Solve and write the answers in Roman numbers.

(a) VIII + IV = ☐   (b) XVI – IX = ☐

(c) XIII – V = ☐   (d) XI × III = ☐

6 Write the time shown in the following clocks.

(a)

(b)

REVIEW EXERCISE

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

(a) 15 _____   (b) 20 _____   (c) 18 _____

2 Fill in the place holders with > or <.

(a) IX ☐ 18   (b) XXXIV ☐ 33

3 Solve and write the answers in Roman numbers.

(a) XVI + IX = ☐   (b) XI – III = ☐

ACTIVITY

Objective: To solve the Roman number sums and decode the message.

Procedure:

First solve the sums and change the answer into Hindu-Arabic numbers, then find the letter from the code that matches each number.

IX + IV = ☐   XX + VI = ☐   V + XV = ☐

VI + II = ☐   X + IX = ☐   V + IV = ☐

XXV – VI = ☐   X – IV = ☐   XV + VI = ☐

XX – VI = ☐

Code

| F = 6 | H = 8 | I = 9 | M = 13 | N = 14 | S = 19 | T = 20 | U = 21 | A = 26 |

Message: ____ ____ ____ ____ ____   ____ ____   ____ ____ ____