Chapter 1

Numbers

Introduction to 4—Digit Numbers

The largest 3-digit number = 999

Add 1 to 999

$$
\begin{array}{r}
9\ 9\ 9 \\
+\qquad 1 \\
\hline
1\ 0\ 0\ 0 \\
\hline
\end{array}
$$

So, the smallest 4-digit number = 1000

and the largest 4-digit number = 9999

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

See the range of 4-digit numbers as follow :

Numeral	Read as
1000	One thousand
1001	One thousand one
:	:
1010	One thousand ten
:	:
1099	One thousand ninety-nine
1100	One thousand one hundred
:	:
1200	One thousand two hundred
:	:
1999	One thousand nine hundred ninety-nine
2000	Two thousand
2001	Two thousand one
:	:
2999	Two thousand nine hundred ninety-nine

3000	Three thousand
:	:
9999	Nine thousand nine hundred ninety-nine

See the following examples :

Example 1 : Arrange the digits of each of the following numbers in the place value chart.

Solution : (a) 9563   (b) 6029

Place Value Chart

S.No.	Th	H	T	O
(i)	9	5	6	3
(ii)	6	0	2	9

Number Names

Numbers	Number Names
(a) 9563	Nine thousand five hundred sixty-three
(b) 6029	Six thousand twenty-nine

Example 2 : Write the numeral for each of the following :

(a) Nine thousand eight hundred seventy

(b) Three thousand one

Solution : (a) Nine thousand eight hundred seventy = 9870

(b) Three thousand one = 3001

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.

Example :   In the number 9659 :

the face value of 9 is 9 ;   the face value of 6 is 6 ;

the face value of 5 is 5 ;   the face value of 9 is 9

Place Value of a Digit in a Number

The place value of a digit in a number depends upon its position in the place value chart.

Example : Consider the number 9659.

Arrange its digits in the place value chart as shown below.

The place value of 9 = 9 ones = 9

The place value of 5 = 5 tens = 50

The place value of 6 = 6 hundreds = 600

The place value of 9 = 9 thousands = 9000

Th	H	T	O
9	6	5	9

Remember : The place value of 0 is always 0.

Numbers in Expanded Form

Expanded form of a number is a sum of the place values of its digits.

Example : Consider the number 9659.

Place Value Chart

Th	H	T	O
9	6	5	9

∴   9659 = 9 thousands + 6 hundreds + 5 tens + 9 ones

= 9000 + 600 + 50 + 9

∴ Expanded form of 9659 is 9000 + 600 + 50 + 9 and short form of 9000 + 600 + 50 + 9 is 9659.

Successor of a Number

Successor of a number is the number that comes just after that number.

∴ Successor of 9659 is 9660.

i.e.   9659 + 1 = 9660

Number + 1 = Successor

Predecessor of a Number

Predecessor of a number is the number that comes just before that number.

∴ Predecessor of 9659 is 9658.

i.e.   9659 − 1 = 9658

Number − 1 = Predecessor

Remember : 0 has no predecessor.

Skip Counting

In skip counting, we write the numbers with a fixed gap between two successive numbers.

So, counting by twos means, there is a gap of 2 between every two successive numbers and so on.

Example 3 : Counting by threes, write five numbers from 6082 onwards.

Solution : Starting from 6082, we go on adding 3.

∴ The required numbers are :

6082,   6085,   6088,   6091,   6094

Example 4 : Counting by fives, write five numbers from 2679 onwards.

Solution : Starting from 2679, we go on adding 5.

∴ The required number are :

2679,   2684,   2689,   2694,   2699

Example 5 : Write the face value and place value of 8 in 6809.

Solution : The face value of 8 in 6809 is 8.

Arrange the digits of 6809 in the place value chart as shown below.

From the place value chart, we have

The place value of 8 = 8 hundreds = 800

Th	H	T	O
6	8	0	9

Example 6 : Write 8069 in expanded form.

Solution : Arrange the digits of the given number in the place value chart as shown below :

∴ 8069 = 8 thousands + 0 hundreds + 6 tens + 9 ones

Th	H	T	O
8	0	6	9

= 8000 + 0 + 60 + 9 = 8000 + 60 + 9

Example 7 : Write the following in short form :

(a) 7000 + 700 + 40 + 6   (b) 6000 + 60 + 4

Solution : (a) 7000 + 700 + 40 + 6 = 7 thousands + 7 hundreds + 4 tens + 6 ones

= 7746

(b) 6000 + 60 + 4   = 6 thousands + 0 hundreds + 6 tens + 4 ones

= 6064

Example 8 : Write the successor of each of the following numbers :

(a) 979   (b) 4207

Solution : The successor of a number is obtained by adding 1 to the given number.
      (a) Successor of 979 is 980.
      (b) Successor of 4207 is 4208.

Example 9 : Write the predecessor of each of the following numbers :
      (a) 700   (b) 6693

Solution : The predecessor of a number is 1 less than the given numbers.
      (a) Predecessor of 700 is 699.
      (b) Predecessor of 6693 is 6692.

Example 10 : Counting by twenties, write five numbers from 6241 onwards.

Solution : Starting from 6241, we go on adding 20.
      ∴ The required numbers are : 6241, 6261, 6281, 6301, 6321

Example 11 : Counting by hundreds, write six numbers from 8735 onwards.

Solution : Starting from 8735, we go on adding 100.
      ∴ The required numbers are : 8735, 8835, 8935, 9035, 9135, 9235

Example 12 : Counting by thousands, write four numbers from 1881 onwards.

Solution : Starting from 1881, we go on adding 1000.
      ∴ The required numbers are : 1881, 2881, 3881, 4881

Exercise 1.1

1. Write the numerals for each of the following :
    (a) Three thousand four hundred thirteen _____
    (b) Four thousand seven hundred three _____
    (c) Nine thousand two hundred five _____

2. Fill in the boxes with the missing digits :
    (a) 7206 = ☐ thousands ☐ hundreds ☐ tens ☐ ones
    (b) 4049 = ☐ thousands ☐ hundreds ☐ tens ☐ ones
    (c) 8960 = ☐ thousands ☐ hundreds ☐ tens ☐ ones

3. Write the numbers name for each of the following numbers :
    (a) 2713 _____
    (b) 8070 _____

4. Write the following short form :
   (a) 1 thousand + 2 hundreds + 3 tens + 5 ones = _____
   (b) 3 thousands + 8 hundreds + 6 tens + 2 ones = _____
   (c) 5 thousands + 0 hundreds + 2 tens + 9 ones = _____
5. Write each of the following in short form :
   (a) 4000 + 50 + 6 = _____   (b) 1000 + 100 + 1 = _____
   (c) 5000 + 200 + 40 +3 = _____
6. Write each of the following in the expanded form :
   (a) 1576 _____
   (b) 3205 _____
   (c) 6027 _____
7. Write the place value of :
   (a) 9 in 7869 _____   (b) 3 in 5237 _____
   (c) 0 in 6027 _____
8. Write the face value and place value of 6 in 9576. _____ , _____
9. Find the difference between the place value and the face value of 2 in 6293.
10. Find the difference between the place value of 1 and the place value of 5 in the numeral 1057.
11. Write the successor of the following :
    (a) 568 _____ (b) 999 _____ (c) 5109 _____ (d) 8889 _____
12. Write the predecessor of the following :
    (a) 700 _____ (b) 867 _____ (c) 1000 _____ (d) 4400 _____
13. Counting by twos, write the numbers from :
    (a) 3294 to 3304   (b) 8587 to 8601
14. Counting by tens, write the numbers from :
    (a) 9880 to 9940   (b) 6887 to 6937
15. Counting by hundreds, write the numbers from :
    (a) 3790 to 4490   (b) 4999 to 5499
16. Counting by thousands, write :
    (a) five numbers from 3578 onwards
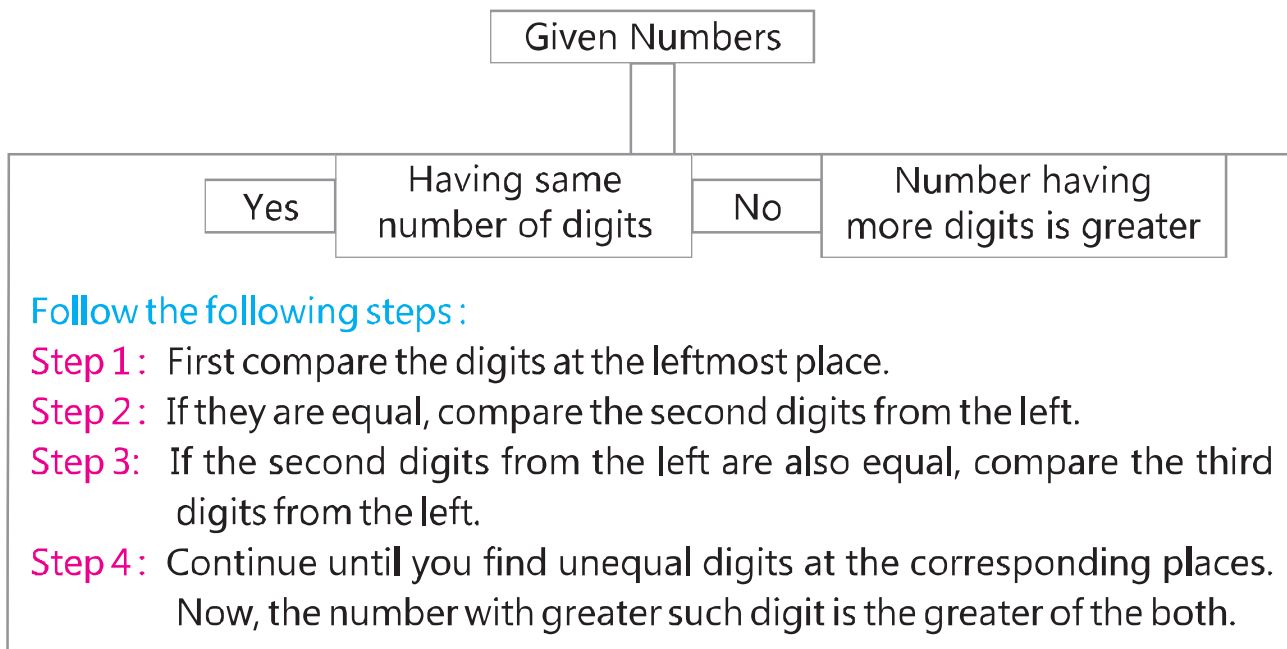   (b) six numbers from 4609 onwards

17. Look at the pattern and fill in the blanks :

(a) 3707, 3807, 3907, _____, _____, _____, _____

(b) 4296, 4297, 4298, _____, _____, _____, _____

(c) 4593, 4592, 4591, _____, _____, _____, _____

Comparison of Numbers

Given Numbers

Yes	Having same number of digits	No	Number having more digits is greater

Follow the following steps :

Step 1 : First compare the digits at the leftmost place.

Step 2 : If they are equal, compare the second digits from the left.

Step 3 : If the second digits from the left are also equal, compare the third digits from the left.

Step 4 : Continue until you find unequal digits at the corresponding places. Now, the number with greater such digit is the greater of the both.

Example 1 : Which is greater 1021 or 591?

Solution : 1021 > 591

(4 digits) (3 digits)

Example 2 : Which is smaller 29750 or 120250?

Solution : 29750 < 120205

(5 digits) (6 digits)

Example 3 : Which is greater 7234 or 6895?

Solution : 7234 > 6895

(4 digits) (4 digits)

Here, 7 > 6

Example 4 : Which is smaller 9405 or 9470?

Solution : 9405 < 9470

(4 digits) (4 digits)

Here, leave 9 and 4 as they are same. Now, 0 < 7.

Order of Numbers

Ascending Order

Smallest Number   Greatest Number
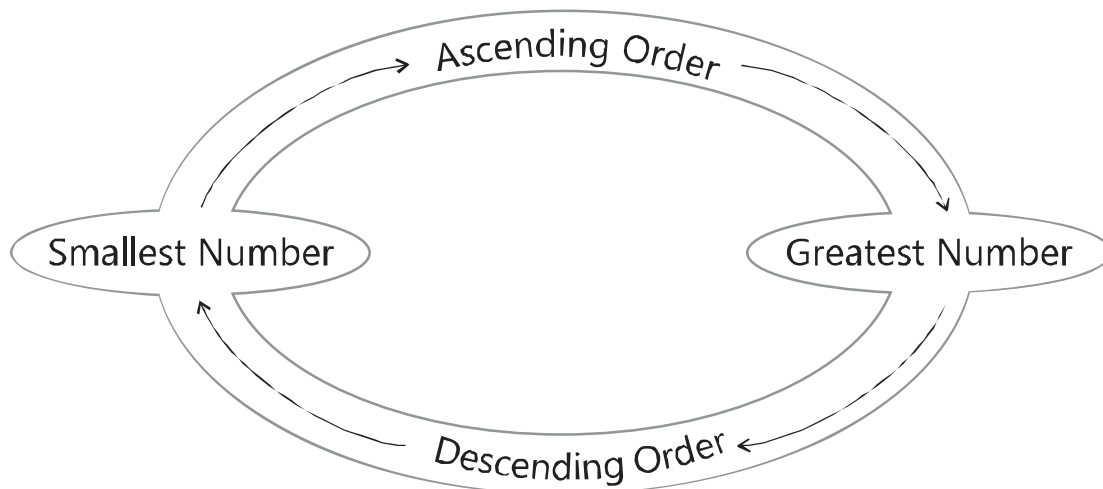
Descending Order

Given Numbers

Ascending Order	Descending Order
Rules: 1. Choose the smallest one. Write this first. 2. Choose the next smallest one excluding first. Write this second and so on.	**Rules:** Just opposite order of ascending order **or** 1. Choose the greatest one. Write this first. 2. Choose the next greatest one. Write this second ... and so on.

See the following examples carefully.

Example 5: Arrange the following numbers in ascending order as well as descending order:

3564, 4003, 987, 9078, 865

Solution. The smallest number = 865 (first)

Next smallest number = 987 (second)

Next smallest number = 3564 (third)

Next smallest number = 4003 (fourth)

Next smallest or the greatest number = 9078 (fifth)

Now, the required ascending order is :

$$865 < 987 < 3564 < 4003 < 9078$$

↓ The smallest one   ↓ The greatest one

Now if we want to write them in descending order, Just reverse the order of the numbers so obtained.

The required descending order is :

$$9078 > 4003 > 3564 > 987 > 865$$

↓ The greatest one   ↓ The smallest one

Comparison with the Help of Place Value Chart

Example 6 : Arrange the following numbers in descending order :

8053, 8530, 7073, 637, 357, 6057

Solution : Let us arrange the given numbers in a place value chart.

Here, there are two 3-digit numbers and four 4-digit numbers.

Among 4-digit numbers, the greatest is 8530, then 8053, then 7073 and lastly comes 6057.

Among 3-digit numbers, the greatest is 637 and then comes 357.

∴ 8530 > 8053 > 7073 > 6057 > 637 > 357

Hence, the given numbers in descending order are :

8530,   8053,   7073,   6057,   637,   357

Th	H	T	O
8	0	5	3
8	5	3	0
7	0	7	3
	6	3	7
	3	5	7
6	0	5	7

Exercise 1.2

1. Compare the numbers in each of the following pairs and write the appropriate symbol > or < in each box :

   (a) 203 ☐ 302

   (b) 603 ☐ 360

   (c) 999 ☐ 1001

   (d) 4032 ☐ 4320

2. Find the smallest number:
   (a) 7507, 7570, 7057, 5770, 7075, 5077 _____
   (b) 1030, 1300, 1003, 3001, 1301, 3010 _____
   (c) 2563, 3625, 3526, 3265, 3652, 3602 _____
3. Find the largest number:
   (a) 3546, 5364, 4653, 6345, 5436, 6435 _____
   (b) 1699, 9619, 6991, 9691, 6119, 9169 _____
   (c) 2651, 2561, 6215, 6521, 1265, 1562 _____
4. Arrange in descending order:
   (a) 1625, 5261, 2651, 1516, 6152, 2156 _____
   (b) 3062, 3602, 203, 402, 1206, 2306 _____
   (c) 4256, 463, 596, 3052, 5203, 659 _____
5. Arrange in ascending order:
   (a) 1909, 1099, 199, 1990, 1090, 1009 _____
   (b) 2003, 1004, 1375, 3457, 574, 1573 _____
   (c) 3042, 342, 4032, 4320, 432, 324 _____
6. Write the smallest 4-digit number formed by using the digits:
   (a) 6, 1, 2, 4 _____
   (b) 9, 0, 3, 5 _____
7. Write the largest 4-digit number formed by using the digits:
   (a) 3, 5, 8, 7 _____
   (b) 9, 5, 0, 2 _____
8. Write four 3-digit numbers formed by using the digits 4, 0 and 7.

Roman Numeral System

The system of writing numbers in the Romans is called Roman Numeral System. Romans use seven letters of English alphabet. These alphabets are:

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

Remember : There is no symbol for zero (0) in Roman Numeral. It also does not use place values to write numbers.

Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals
1	I	11	XI	21	XXI	31	XXXI
2	II	12	XII	22	XXII	32	XXXII
3	III	13	XIII	23	XXIII	33	XXXIII
4	IV	14	XIV	24	XXIV	34	XXXIV
5	V	15	XV	25	XXV	35	XXXV
6	VI	16	XVI	26	XXVI	36	XXXVI
7	VII	17	XVII	27	XXVII	37	XXXVII
8	VIII	18	XVIII	28	XXVIII	38	XXXVIII
9	IX	19	XIX	29	XXIX	39	XXXIX
10	X	20	XX	30	XXX	40	XL

Rules for Writing Roman Numerals

Rules 1 : Numeral I cannot be repeated more than once towards the left and its repetition towards right means add one. I cannot be repeated more than three times towards the right.

Examples : (a) III = 1 + 1 + 1 = 3   (b) IIII is wrong.

Rule 2 : When we write the smaller numeral to the left of the greater numeral, it means subtraction.

Examples : (a) IV = 5 – 1 = 4   (b) IX = 10 – 1 = 9

Rule 3 : When we write the smaller numeral to the right of the greater numeral, it means addition.

Examples : (a) VI = 5 + 1 = 6   (b) XI = 10 + 1 = 11

Rule 4 : I and X can be repeated for maximum three times. Repetition of X also means addition.

Examples : (a) XX = 10 + 10 = 20   (b) XXX = 10 + 10 + 10 = 30
(c) XXXX is wrong.

Rule 5 : For numbers greater than 10, the numbers are first split into tens and ones.

Examples : (a) XI = 10 + 1 = 11
(b) XXV = 10 + 10 + 5 = 25

Short Summary :

1. Only I and X can be repeated.
2. The numeral V is never repeated.
3. No numeral can be repeated more than three times.
4. I can be subtracted from V and X only.
5. The numeral V is never subtracted.

Some More Examples :

A. II = 1 + 1 = 2, III = 1 + 1 + 1 = 3
   XX = 10 + 10 = 20, XXX = 10 + 10 + 10 = 30
B. VI = 5 + 1 = 6, VII = 5 + 1 + 1 = 7, VIII = 5 + 1 + 1 + 1 = 8
   XI = 10 + 1 = 11, XII = 10 + 1 + 1 = 12, XIII = 10 + 1 + 1 + 1 = 13
C. IV = 5 − 1 = 4, IX = 10 − 1 = 9
D. 11 = 10 + 1 = XI, 12 = 10 + 2 = XII, 13 = 10 + 3 = XIII,
   14 = 10 + 4 = XIV, 15 = 10 + 5 = XV, 16 = 10 + 6 = XVI,
   20 = 10 + 10 = XX, 24 = 10 + 10 + 4 = XXIV
   30 = 10 + 10 + 10 = XXX, 39 = 10 + 10 + 10 + 9 = XXXIX

◄ ▬ Exercise 1.3

1. Write the Roman numerals for the following.
   (a) 6 (b) 2 (c) 26
2. Write the Hindu-Arabic numerals for the following.
   (a) XXVIII (b) XXXIV (c) XXXVII
3. Fill in the placeholders with correct symbol >, < or =.
   (a) XI ▢ 9 (b) X ▢ 11 (c) XIX ▢ 19
4. Which of the following are meaningless?
   (a) VV (b) VX (c) XIV (d) XIIV (e) XIX
5. Solve and write the answers in Roman numerals :
   (a) VI + IV (b) XI − V (c) VII + XVIII

Introduction to Devanagri Script

There is a minor difference between standard form of digits and Devanagri form of digits, which are represented as follows.

Standard form of digits	Devanangri form of digits
1	१
2	२
3	३
4	४
5	५
6	६
7	७
8	८
9	९

See the following numbers from 1 to 100 :

1	2	3	4	5	6	7	8	9	10
१	२	३	४	५	६	७	८	९	१०
11	12	13	14	15	16	17	18	19	20
११	१२	१३	१४	१५	१६	१७	१८	१९	२०
21	22	23	24	25	26	27	28	29	30
२१	२२	२३	२४	२५	२६	२७	२८	२९	३०
31	32	33	34	35	36	37	38	39	40
३१	३२	३३	३४	३५	३६	३७	३८	३९	४०
41	42	43	44	45	46	47	48	49	50
४१	४२	४३	४४	४५	४६	४७	४८	४९	५०
51	52	53	54	55	56	57	58	59	60
५१	५२	५३	५४	५५	५६	५७	५८	५९	६०
61	62	63	64	65	66	67	68	69	70
६१	६२	६३	६४	६५	६६	६७	६८	६९	७०
71	72	73	74	75	76	77	78	79	80
७१	७२	७३	७४	७५	७६	७७	७८	७९	८०
81	82	83	84	85	86	87	88	89	90
८१	८२	८३	८४	८५	८६	८७	८८	८९	९०
91	92	93	94	95	96	97	98	99	100
९१	९२	९३	९४	९५	९६	९७	९८	९९	१००

See the following examples :

Read the given numbers aloud and write in the expanded form

(a) ११५ = १०० + १० + ५   (b) २२० = २०० + २० + ०   (c) ४९८ = ४०० + ९० + ८

See and identify the pattern :

(a) 209, 211, 213, 215, 218   (b) 305, 310, 315, 320, 325, 330

(c) 120, 118, 116, 114, 112, 110

Example 1 : Write the following numbers in ascending order :

(a) ५६, १३७, ४८, ४००, ७०, ५, १३   (b) २२१, २३८, ११५, १६६, ८१६

Solution : (a) ५, १३, ४८, ५६, ७०, १३६, ४००   (b) ११५ < १६६ < २२१ < २३८ < ८२६

Example 2 : Convert the following Indian numbers into Hindu-Arabic numerals :

(a) ३   (b) ८   (c) १९   (d) १६   (e) २८

(f) २०   (g) ३०   (h) २५   (i) ११

Must Practice Exercise

1. Write the place value of the circled digit :

    (a) 4⑦28 _____   (b) 984③ _____   (c) ⑦645 _____

2. Fill in the blanks using place values for the following numbers :

    (a)

2	4	0	8

    (b)

    6
    40
    200
    9000
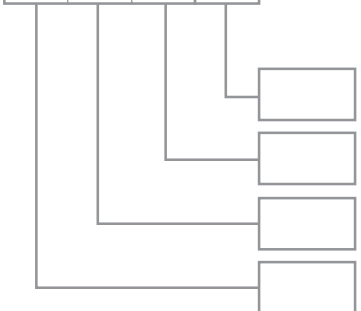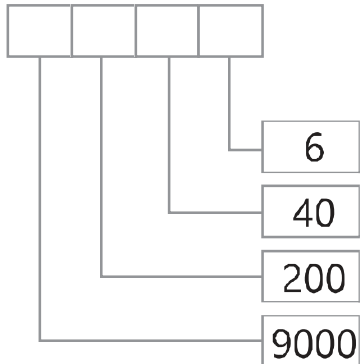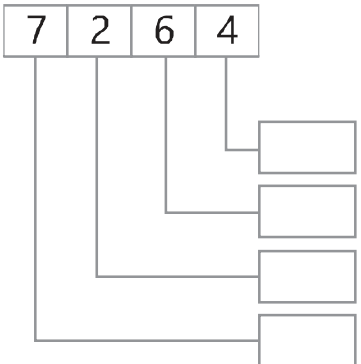
    (c)

7	2	6	4

3. Write the number names for the following numbers :

    (a) 2036   (b) 5316   (c) 2792

4. Write the following numbers in figures :

    (a) Six thousand two hundred nine   (b) Seven thousand ninety-one

    (c) Two thousand four

5. Write the following in expanded form :

    (a) 2472   (b) 3362   (c) 7052

6. Write the following in standard or short form :
   (a) 1000 + 80   (b) 9000 + 800 + 6   (c) 7000 + 600 + 40 + 2

7. Fill in the boxes with appropriate sign >, < or = :
   (a) 193 ☐ 931   (b) 2889 ☐ 2898   (c) 3974 ☐ 3986
   (d) 8018 ☐ 8000 + 10 + 8
   (e) 300 ☐ Three hundred ninety
   (f) 8206 ☐ Eight thousand twenty-six
   (g) 8029 ☐ Eight thousand twenty-nine

8. Encircle the largest number :
   (a) 354, 536, 465, 634, 543
   (b) 265, 561, 215, 652, 265, 156
   (c) 3699, 3619, 3699, 3969, 3611, 3916

9. Encircle the smallest number.
   (a) 750, 570, 705, 770, 707, 507   (b) 5129, 4289, 5209, 5912, 8029, 5921

10. Arrange the following numbers in ascending (increasing) order :
    (a) 2197, 2984, 2913, 2864   (b) 5497, 4318, 6412, 7999

11. Arrange the following numbers in descending (decreasing) order :
    (a) 766, 301, 890, 525   (b) 5678, 3435, 6789, 5457

12. For each of the following write the next three numbers :
    (a) 7786, _____   (b) 5014, _____

13. Counting in twos, write next four numbers starting from :
    (a) 4003, _____   (b) 8065, _____

14. Counting in fives, write next four numbers starting from :
    (a) 3505, _____   (b) 6342, _____

15. Counting by tens, write next four numbers starting from :
    (a) 5210, _____   (b) 1987, _____

16. Counting by hundreds, write next four numbers starting from :
    (a) 4358, _____   (b) 7019, _____

17. Counting by thousands, write next four numbers staring from :
    (a) 4907, _____   (b) 3718, _____

18. Complete the pattern :
    (a) 880, 882, _____   (b) 2220, 2240 _____

19. Write the predecessors of the following numbers :

(a) ☐ 469　　(b) ☐ 963　　(c) ☐ 550　　(d) ☐ 892

20. Write the successors of the following numbers :

(a) 894 ☐　　(b) 654 ☐　　(c) 999 ☐　　(d) 899 ☐

21. (a) Write the greatest and smallest four digit number formed by the digits 9, 0, 1, 7.

(b) What number do we get by adding 1 to 999? Is this number the successor of 999? Is it the smallest number of four digits?

22. Write any five 4-digit numbers using all the digits ६, ७, ४, ५ and then arrange them in ascending order.

23. The population of two towns A and B is ६०५८ and ५८९८ respectively. Which town has more population?

24. A town has 3195 males and 3980 females. Which are less in number, males or females?

25. Convert the following into Roman Numerals :

(a) 8　 = _____　　　(b) 25　 = _____　　　(c) 11　 = _____

26. Convert the following into Hindu-Arabic Numerals and then Indian Numerals?

(a) XX　　(b) XIX　　(c) XXVIII　　(d) XX – VIII　　(e) XV – V

Click Type Questions

Tick (✓) the correct answer :

1. 6000 + 0 + 80 + 2 = ?

(a) 682 ☐　　(b) 6082 ☐　　(c) 6802 ☐　　(d) 6820 ☐

2. The place value of 1 in 6319 is :

(a) 0 ☐　　(b) 1 ☐　　(c) 10 ☐　　(d) 100 ☐

3. The correct Roman numeral for 29 is :

(a) XXIX ☐　　(b) IXXX ☐　　(c) XXVIIII ☐　　(d) IXXL ☐

4. The Roman numeral that represents 100 is :

(a) L ☐　　(b) C ☐　　(c) D ☐　　(d) M ☐

5. The 'V' in Roman numerals can be represented only :

(a) once ☐　　(b) twice ☐　　(c) thrice ☐　　(d) four times ☐

6. Sum of the odd numbers between 5 and 12 is :

(a) 7 ☐　　(b) 16 ☐　　(c) 17 ☐　　(d) 27 ☐

7. Which of the following numbers has a digit greater than 1 in the hundreds place?

(a) 3072 ☐   (b) 1798 ☐   (c) 9165 ☐   (d) 5005 ☐

8. Which of the following Roman numerals is meaningless?

(a) XVIII ☐   (b) IXIV ☐   (c) XXIV ☐   (d) XXIX ☐

9. What number will come next in the following series?

200, 190, 170, 140......

(a) 130 ☐   (b) 120 ☐   (c) 110 ☐   (d) 100 ☐

10. Which one of the following is the correct statement?

(a) XXV < 22 ☐   (b) XXL = 30 ☐   (c) XXIX < 30 ☐   (d) LL = 100 ☐

Fun-Zone

Using matchsticks to form Roman numerals. Some numerals have been shown below to guide you in the formation process.
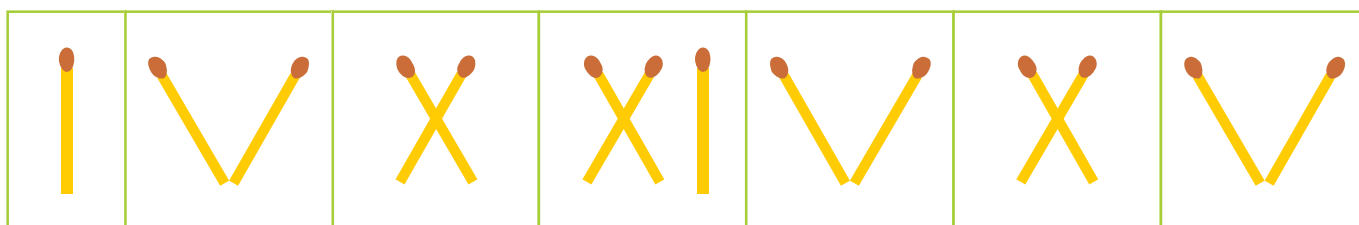
Now, prepare a chart mentioning the numeral and number of matchsticks required as shown below:

Hindu-Arabic Numeral	Roman Numeral	Number of Matchsticks used
11	XI	3
12	XII	
13	XIII	
14	XIV	
15	XV	

2 Addition and Subtraction

Addition of 4—digit Numbers

When two or more numbers are added, each of the numbers to be added is called addend and the result obtained after addition is called sum.

Addition without Carrying

Rules

Step 1: Arrange the digits of the given numbers in columns of thousands, hundreds, tens and ones.

Step 2: Add column wise.

First add the ones, then add the tens, followed by the hundreds and finally add the thousands.

Let us add 5362 and 3236.

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

Hints

Adding ones : 2 ones + 6 ones = 8 ones
Write 8 under ones column.

Adding tens : 6 tens + 3 tens = 9 tens
Write 9 under the tens column.

Adding hundreds : 3 hundreds + 2 hundreds = 5 hundreds
Write 5 under hundreds column.

Adding thousands : 5 thousands + 3 thousands = 8 thousands
Write 8 under thousands column.

Hence, the sum of the given numbers is 8598.

Let us add 4142, 1203 and 2631.

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

Hints

Adding ones : 2 + 3 + 1 = 6 Write 6 under ones column.

Adding tens : 4 + 0 + 3 = 7 Write 7 under tens column.

Adding thousands : 1 + 2 + 6 = 9 Write 9 under hundreds column.

Adding thousands : 4 + 1 + 2 = 7 Write 7 under thousands column.

1. Find the sum :

(a)

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

(b)

Th	H	T	O
4	9	3	6
+ 5	0	5	3

(c)

Th	H	T	O
6	4	2	5
+ 3	5	4	3

(d)

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

(e)

Th	H	T	O
3	2	1	4
2	4	2	2
+	2	6	3

(f)

Th	H	T	O
5	0	2	4
	3	3	0
+		4	5

2. Arrange in columns and find the sum :

(a) 2132 + 435

(b) 6226 + 1341 + 332

(c) 3526 and 4362

(d) 6381, 2102 and 1000

Addition with Carrying

Hints

Let us add 4477 and 3665.

Adding ones	: 7 ones + 5 ones = 12 ones		
	= 10 ones + 2 ones = 1 ten + 2 ones		
	Write 2 under ones column.		
	Carry over 1 ten to tens column.		

Th	H	T	O	
①	①	①	←Carry
4	4	7	7
+ 3	6	6	5
8	1	4	2

Adding tens : 1 ten (carried over) + 7 tens + 6 tens = 14 tens
= 10 tens + 4 tens = 1 hundred + 4 tens
Write 4 under tens column.
Carry over 1 hundred to hundreds column.

Adding hundreds : 1 hundred (carried over) + 4 hundreds + 6 hundreds = 11 hundreds
= 10 hundreds + 1 hundred = 1 thousand + 1 hundred
Write 1 under hundreds column.
Carry over 1 thousand to thousands column.

Adding thousands : 1 thousand (carried over) + 4 thousands + 3 thousands
Write 8 thousands to thousands column.

Let us add 5378, 669, 284 and 7 without hints:

Th	H	T	O
	①	②	② ←Carry
5	3	7	8
	6	6	9
	2	8	4
+			7
6	3	3	8

Hence, the sum of the given numbers is 6338.

Exercise 2.2

1. Find the sum :

(a)

Th	H	T	O
7	6	3	5
+ 4	3	6	5

(b)

Th	H	T	O
7	9	8	9
+ 1	9	1	6

(c)

Th	H	T	O
3	7	0	8
+ 7	6	1	9

(d)

Th	H	T	O
2	7	5	8
3	4	8	2
+ 4	3	4	5

(e)

Th	H	T	O
8	8	6	9
	4	7	4
+ 3	5	8	6

(f)

Th	H	T	O
8	8	7	9
	4	6	6
+	7	3	4

2. Find the sum :

(a) 1358 + 2679 + 1235   (b) 1996 + 2148 + 99 + 8

3. Arrange in columns and add :

(a) 4047, 2964 and 3782   (b) 2874, 487, 96 and 1065

4. Fill in the missing numerals :

(a)

Th	H	T	O
☐	4	☐	3
+ 6	☐	6	☐
9	0	2	1

(b)

Th	H	T	O
1	3	☐	☐
+ ☐	☐	6	8
9	3	1	7

(c)

Th	H	T	O
☐	2	☐	7
+ 1	☐	9	☐
5	7	8	3

Properties of Addition

1. **Commutative Property :**

   Let A and B are two numbers.

   Then addition of A and B = A + B

   Now, if we reverse the order, then, addition of A and B = B + A

   The result will be same.

   For this, $A + B = B + A$

   Hence, order of numbers do not affect the result or sum.

   Let us consider two numbers 3266 and 4677.

Th	H	T	O	
	①	①	←Carry
3	2	6	6
+ 4	6	7	7
7	9	4	3

   and

Th	H	T	O	
	①	①	←Carry
4	6	7	7
+ 3	2	6	6
7	9	4	3

   ∴ 3266 + 4677 = 7943   and   4677 + 3266 = 7943

   Conclusion : 3266 + 4677 = 4677 + 3266

2. **Associative property :**

   If we add three or more numbers, then this property holds good.

   Let A, B and C are three numbers. Sum of A, B and C can be obtained in such a manner.

   = (A + B) + C (A and B are associative)

   = A + (B + C) (B and C are associative)

   = (A + C) + B (A and C are associative)

   Now, the result in each case will be same.

   Hence, $(A + B) + C = A + (B+C)$

   Let us add 1368, 2452 and 1073 in two different ways.

   Here,   1368 + 2452 = 3820

   ∴   (1368 + 2452) + 1073

            = 3820 + 1073

            = 4893

		①	①	←Carry
	1	3	6	8
+	2	4	5	2
	3	8	2	0

		①	①	←Carry
	3	8	2	0
+	1	0	7	3
	4	8	9	3

And, 2452 + 1073 = 3525

∴ 1368 + (2452 + 1073)

$\quad$ = 1368 + 3525

$\quad$ = 4893

	Th	H	T	O	
		①	←	Carry	
	2	4	5	2	
+	1	0	7	3	
	3	5	2	5	

			Carry → ①		
	1	3	6	8	
+	3	5	2	5	
	4	8	9	3	

Additive Property of Zero (0)

The sum of a number and 0 is the number itself.

See the following example :

Th	H	T	O
4	6	7	4
+			0
4	6	7	4

and

Th	H	T	O
			0
+ 4	6	7	4
4	6	7	4

We have,

$\qquad$ 4674 + 0 = 4674 and 0 + 4674 = 4674

◄ Exercise 2.3

1. Fill in the blanks by using suitable property :

(a) 1064 + _____ = 6397 + 1064   (b) _____ + 3716 = 3716

(c) 5965 + _____ = 5965

(d) (1008 + 999) + 1066 = _____ + (999 + 1066)

(e) 1938 + (2346 + 1650) = (1938 + 2346) + _____

2. Find the sum by suitable grouping :

(a) 52 + 43 + 58 + 47 $\qquad$ (b) 127 + 313 + 125 + 75

Subtraction without Borrowing

Rules

Step 1 : Write the smaller number under the larger one in columns.

Step 2 : Subtract columnwise.

$\qquad$ Subtract ones from ones, tens from tens, hundreds from hundreds and thousands from thousands.

The following examples will make the idea more clear.
Let us subtract 6533 from 8796.

Hints

Th	H	T	O
8	7	9	6
− 6	5	3	3
2	2	6	3

Subtracting ones : 6 ones − 3 ones = 3 ones
Write 3 under ones column.

Subtracting tens : 9 tens − 3 tens = 6 tens
Write 6 under tens column.

Subtracting hundreds : 7 hundreds − 5 hundreds = 2 hundreds
Write 2 under hundreds column.

Subtracting thousands : 8 thousands − 6 thousands
= 2 thousands
Write 2 under thousands column.

Thus, 8796 − 6533 = 2263

Subracting with Borrowing

Let us subtract 2356 from 8525.

Step 1 : Arrange the numbers column wise.

Th	H	T	O
8	5	2	5
− 2	3	5	6

Step 2 : Subtracting ones :
We want to subtract 6 from 5. But 6 > 5.
So, from the tens column, we borrow 1 ten, leaving behind 1 ten.
Now, 1 ten + 5 ones = 10 ones + 5 ones = 15 ones
∴ 15 ones − 6 ones = 9 ones
Write 9 under ones column.

Th	H	T	O
		①	⑮
8	5	2̶	5̶
− 2	3	5	6
			9

Step 3 : Subtraction tens :
We want to subtract 5 from 1. But 5 > 1.
So, from the hundreds column, we borrow 1 hundred leaving behind 4 hundreds.
Now, 1 hundred + 1 ten
= 10 tens + 1 ten = 11 tens
∴ 11 tens − 5 tens = 6 tens
Write 6 under tens column.

Th	H	T	O
		⑪	
	④	1̶	⑮
8	5̶	2̶	5̶
− 2	3	5	6
		6	9

Step 4 : Subtracting hundreds :

4 hundreds – 3 hundreds = 1 hundred

Write 1 under hundreds column.

Th	H	T	O
		(11)	
	(4)	(1̶)	(15)
8	5̶	2̶	5̶
– 2	3	5	6
	1	6	9

Th	H	T	O
		(11)	
	(4)	(1̶)	(15)
8	5̶	2̶	5̶
– 2	3	5	6
6	1	6	9

Step 5. Subtracting thousands :

8 thousands – 2 thousands = 6 thousands

Write 6 under thousands column.

Thus, 8525 – 2356 = 6169

Verifying the Answer

Add the answer obtained on subtraction to the smaller number. If you get the bigger number, the answer is correct.

Smaller number →

Answer obtained →

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

= Bigger Number

Hence, the answer obtained is correct.

Similarly, we can subtract without hints.

Let us subtract 2385 from 5000.

Th	H	T	O
(4)	(9)	(9)	(10)
5̶	0̶	0̶	0̶
– 2	3	8	5
2	6	1	5

Exercise 2.4

1. Subtract :

(a)

Th	H	T	O
6	5	4	8
– 4	3	3	6

(b)

Th	H	T	O
7	9	8	4
– 3	7	5	4

(c)

Th	H	T	O
9	4	8	2
– 6	3	4	0

2. Write in column form and find the difference:
   (a) 3782, 2450   (b) 9305, 6302
3. Subtract 3640 from 6863.
4. Find the difference between 3472 and 3102.
5. Subtract :

(a)
Th	H	T	O
4	6	3	2
− 3	7	6	5

(b)
Th	H	T	O
7	7	9	7
− 2	8	8	8

(c)
Th	H	T	O
5	6	4	3
− 2	8	5	6

6. Find the difference :
   (a) 3016 − 1879   (b) 4000 − 2832
7. Find the difference between :
   (a) 4796 and 1998   (b) 8964 and 9020
8. Find the missing numbers :

(a)
Th	H	T	O
☐	3	☐	6
− 2	☐	6	☐
4	9	8	7

(b)
Th	H	T	O
☐	2	☐	1
− 2	☐	6	☐
2	8	9	7

Word Problems on Addition and Subtraction

Example 1 : There are three candidates in a gram panchayat election. They got 2874 votes, 3587 votes and 708 votes respectively. If 59 votes were found invalid, how many votes were polled in all?

Solution : Number of votes polled to first candidate = 2874

Number of votes polled to second candidate = 3587

Number of votes polled to third candidate = 708

Number of invalid votes = 59

```
    ②  ②  ②
    2  8  7  4
    3  5  8  7
       7  0  8
 +        5  9
    7  2  2  8
```

Total number of votes polled = 2874 + 3587 + 708 + 59 = 7228

Hence, the number of votes polled is 7228.

Example 2 : How much is 6103 greater than 4817?

Solution : The greater of the given numbers = 6103

The smaller of the given numbers = 4817

Difference between the given numbers = 6103 − 4817

= 1286

Hence, 6103 is greater than 4817 by 1286.

```
      ⑩ ⑨
   ⑤ ⓪ ⑩ ⑬
   6̶ 1̶ 0̶ 3̶
 − 4  8  1  7
   1  2  8  6
```

Example 3 : The sum of two numbers is 9031. If one of the numbers is 4159 find the other number.

Solution : Sum of the two numbers = 9031

One of the numbers = 4159

Other number = 9031 − 4159

= 4872

Hence, the other number is 4872.

```
         ⑨ ⑫
      ⑧ ⑩ ② ⑪
      9̶ 0̶ 3̶ 1̶
    − 4  1  5  9
      4  8  7  2
```

Example 4 : The price of a watch is ₹ 2,375 and that of a mobile is ₹ 2,800. Which costs more and by how much?

Solution : The price of a watch = ₹ 2375

The price of a mobile = ₹ 2800

Clearly, 2800 > 2375.

∴ The mobile costs more than the watch

Difference in their prices = ₹ (2800 − 2375) = ₹ 425

Hence, the mobile costs more than the watch by ₹ 425.

```
            ⑨
         ⑦ ⑩ ⑩
      2  8̶ 0̶ 0̶
    − 2  3  7  5
         4  2  5
```

Exercise 2.5

1. A number exceeds 6897 by 2478. What is that number?

2. What number must be added to 5679 to get 9123?

3. What number must be subtracted from 6314 to get 4869?

4. The difference between two numbers is 1876. If the smaller number is 7948, find the larger number.

5. The difference between two numbers is 2895. If the larger number is 8560, find the smaller one.

6. Uma needs ₹ 5,108 to buy a silver chain. She has ₹ 3,289 with her. How much more does she need?

7. The cost of a music system is ₹ 6,356 more than that of a bicycle. If the cost of the bicycle is ₹ 1,765, what is the cost of the music system?

8. In an orchard, there are 1863 coconut trees, 1077 mango trees, 978 tamarind trees and 169 orange trees. How many trees are there in all in the orchard?
9. In an examination 8320 students appeared. Out of these 6548 could get through. How many failed?
10. Mr Raman had ₹ 9,213 in his bank account. He withdraw ₹ 7,435. How much money left in his bank account now?

Must Practice Exercise

1. Add the following :

(a)

Th	H	T	O
5	3	6	2
		5	4
+		3	0	2

(b)

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

2. Arrange in columns and find the sum :

(a) 2401 + 1036 + 101 + 60   (b) 5360, 407, 111 and 21

3. Add the following :

(a)

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

(b)

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

4. Find the sum :

(a) 4059 + 816 + 1977   (b) 8888, 777, 66, 155 and 8

5. Find the missing numerals :

(a)

Th	H	T	O
5	☐	8	☐
+ 2	3	☐	9
☐	1	6	6

(b)

Th	H	T	O
6	☐	☐	4
+ 1	7	9	☐
☐	0	8	2

(c)

Th	H	T	O
8	☐	6	1
− ☐	5	☐	8
3	7	8	☐

6. Fill in the blanks :

   (a) 2357 + 1876 = 1876 + _____
   (b) 4689 + 1831 = _____ + 4689

   (c) _____ + 2391 = 2391 + 5137

   (d) (2346 + 1530) + 1734 = _____ + (1530 + 1734)

7. Find the sum by suitable grouping :

   (a) 53 + 42 + 47 + 58
   (b) 291 + 378 + 109 + 122

8. Write in columns form and find the difference :

   (a) 5697 − 4372
   (b) Subtract 478 from 1589

9. Subtract the following :

(a)
Th	H	T	O
3	9	0	8
−	6	0	3

(b)
Th	H	T	O
6	4	5	0
−	2	3	0

(c)
Th	H	T	O
1	2	3	8
−		2	3

(d)
Th	H	T	O
3	6	0	0
− 2	9	7	5

(e)
Th	H	T	O
6	0	0	1
− 2	9	9	9

(f)
Th	H	T	O
9	6	5	0
− 5	4	6	8

10. There are 3250 students in a school. If 1867 of them are boys, how many are girls?

11. On Kunal's admission in a school, his father paid ₹ 2,758 as fees, spent ₹ 1,367 on his books and ₹ 975 on his school uniform. How much money did he spend in all?

12. The sum of two numbers is 8324. If one of the numbers is 5896, what is the other number?

Click **Type Questions**

Tick (✓) the correct answer :

1. 25 + 35 + 45 + 55 = ?

   (a) 130 ☐   (b) 140 ☐   (c) 150 ☐   (d) 160 ☐

2. If we add 9 tens, 5 hundreds and 3 ones, then the result is :

   (a) 17 ☐   (b) 395 ☐   (c) 593 ☐   (d) 953 ☐

3. Joe has ₹ 38, Anna has ₹ 25 more than Joe. How much money do they have together?

    (a) ₹ 63 ☐   (b) ₹ 76 ☐   (c) ₹ 91 ☐   (d) ₹ 101 ☐

4. $1345 + 55 + 100 = \boxed{} + 500$

    What should come in the empty box above?

    (a) 900 ☐   (b) 1000 ☐   (c) 1050 ☐   (d) 1100 ☐

5. In the sum of 1984, 2417 and 1689, how many thousands are there?

    (a) 5 ☐   (b) 6 ☐   (c) 7 ☐   (d) 8 ☐

6. 14 less than 41 is :

    (a) 7 ☐   (b) 33 ☐   (c) 27 ☐   (d) 37 ☐

7. Which number will come next in the pattern shown below?

    63, 61, 57, 51…

    (a) 41 ☐   (b) 43 ☐   (c) 45 ☐   (d) 47 ☐

8. Look at the number sentence below :

    $87 + \boxed{} = 141$

    Which number will make the number sentence true?

    (a) 54 ☐   (b) 56 ☐   (c) 64 ☐   (d) 68 ☐

9. What is $15 - 14 + 13 - 12 + 11 - 10 + 9 - 8$?

    (a) 92   (b) 48   (c) 4   (d) 1

10. $800 - \boxed{}$ tens = 630

    (a) 17 ☐   (b) 170 ☐   (c) 27 ☐   (d) 270 ☐

Fun-Zone

1. Solve the square puzzle.

2. Ravi was practicing for his running competition for Sports Day. On the first day, he ran for 10 minutes. On the second day, he ran for 12 minutes and on the third day, he ran for 14 minutes. If he continues like this, how many minutes would he be running on the tenth day?

88	+	12	+	49	=	
+		+		+		+
93	+	88	+	18	=	
+		+		+		+
27	+	4	+	46	=	
=		=		=		=
	+		+		=	