New

Perfect Composite Mathematics

Including Activity Worksheets

CLASS – IV

[In accordance with the latest NCF prepared by the NCERT, New Delhi]

SPECIAL EDITION FOR ARMY SCHOOLS

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Preface

This book is one from the series **New Perfect Composite Mathematics** and is based on the syllabus developed by the National Council of Educational Research and Training (NCERT), New Delhi.

The subject matter is produced in such a way that it relates to the environment and focuses on the development and understanding of the students. It also aims to improve their thinking and reasoning skills. All books in this series are activity based and are written in a simple language.

The subject matter has been presented in graded form. The age, the learning ability and the mathematical difficulties faced by the students at all levels have been kept in mind while presenting difficult concepts.

The syllabus includes the four fundamental operations, namely, addition, subtraction, multiplication and division. These operations have been dealt in a step-by-step approach to enable students understand exactly what is to be done. The traditional and stereotype questions have been avoided.

Salient Features of this book are:

- The book covers the entire prescribed syllabus.
- Number system up to 6 digits has been explained. Reading and Writing of Roman Numerals up to 39 has been included.
- **Lattice and standard** multiplication algorithm has been given.
- Formation of **mathematical stories** or **word problems** has been taught.
- Paper folding method has been explained in geometry.
- Shapes have been created by using **Tangrams**.
- **Use of tiling** the floors has been explained with examples.
- **Making of 4-faced and 6-faced cubes** from given nets have also been included.
- Dot papers have been used to draw **nets of cubes and cuboids**.
- Drawing **the plan**, **elevation** and **side view** of simple objects has been explained in a systematic way.
- Method of finding area by using square paper has been used.
- **Lab Activities** have been included to make the subject interesting for the students.
- Challenging problems under the heading "Challenge" have also been included.
- Four model papers, two term-wise papers and one final examination paper covering the entire syllabus have been given for practice.
- A few high level questions have been given under the head "Put on Your Thinking Cap".
- The questions in the chapter "Let us Get Ready for Examination" are given to enable the students to revise the syllabus before the final examination.

The books of the series will surely prove to be useful for the students.

I would like to thank Mrs. Sunita Jai Singh and Mrs. Shuchi Goyal for their valuable suggestions which helped me in bringing the series in the present form.

Last but not the least, I am thankful to the publishers who have taken great pains in making the books reader-friendly.

Suggestions for further improvement of the series will be gratefully acknowledged.

AUTHOR

Syllabus

Geometry (16 hrs.)

Shapes and Spatial Understanding

- Draw a circle free hand and with compass.
- Identifies centre, radius and diameter of a circle.
- Uses Tangrams to create different shapes.
- Tiles geometrical shapes: using one or two shapes.
- Chooses a tile among a given number of tiles that can tile a given region both intuitively and experimentally.
- Explores intuitively the area and perimeter of simple shapes.
- Makes 4-faced, 5-faced and 6-faced cubes from given nets especially designed for the same.
- Explores intuitively the reflections through inkblots, paper cutting and paper folding.
- Reads and draws 3-D objects, making use of the familiarity with the conventions used in this.
- Draws intuitively the plan, elevation and side view of simple objects.

Numbers (40 hrs.)

Numbers and Operations

- Writes multiplication facts.
- Writes tables up to 10×10.
- Multiplies two and three digit numbers using lattice algorithm and the standard (column) algorithm.
- Divides a given number by another number in various ways such as:
  - by drawing dots.
  - by grouping.
  - by using multiplication facts.
  - by repeated subtraction.
- Applies the four operations to life situations.
- Frames word problems.
- Estimates sums, differences and products of given numbers.

Mental Arithmetic

- Adds and subtracts multiples of 10 and 100, mentally.
- Completes multiplication facts by adding partial products, mentally (e.g. $7 \times 6 = 5 \times 6 + 2 \times 6$).

Fractional Numbers

- Identities half, one-fourth and three-fourths of a whole.
- Identifies the symbols, $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}$.
- Explains the meaning of $\frac{1}{2}, \frac{1}{4}$ and $\frac{3}{4}$.

- Appreciates equivalence of $\frac{2}{4}$ and $\frac{1}{2}$; and of $\frac{2}{2}$, $\frac{3}{3}$, $\frac{4}{4}$ and 1.

Money (5 hrs.)

Money

- Converts Rupee to Paise.
- Adds and subtracts amounts using column addition and subtraction with regrouping.
- Uses operations to find totals, change, multiple costs and unit cost.
- Estimates roughly the totals and total cost.

Measurement (21 hrs.)

Length

- Relates metre with centimetre;
- Converts metre into centimetres and vice versa.
- Solves problems involving length and distances.
- Estimates length of an object and distance between two given locations.

Weight

- Weighs objects using a balance and standard units.
- Determines sums and differences of weights.
- Estimates the weight of an object and verifies using a balance.

Volume

- Measures volumes of given liquid using containers marked with standard units.
- Determines sums and differences of volumes.
- Estimates the volume of a liquid contained in a vessel and verifies by measuring.

Time

- Computes the number of weeks in a year.
- Correlates the number of days in a year with the number of days in each month.
- Justifies the reason for the need of a leap year.
- Reads clock time to the nearest hours and minutes.
- Expresses time, using the terms, 'a.m.' and 'p.m.'
- Estimates the duration of familiar events.
- Finds approximate time elapsed by (to the nearest hour) forward counting.
- Computes the number of days between two dates.

Data Handling (6 hrs.)

- Collects data and represents in the form of bar graphs;
- Draws Inferences by discussing with the teacher.

Patterns (6 hrs.)

- Identifies patterns in multiplication and division: multiples of 9.
- Casts out nines from a given number to check if it is a multiple of nine.
- Multiplies and divides by 10s, 100s.
- Identifies geometrical patterns based on symmetry.

Contents

Warm-Up

EXERCISES

1. Write the numeral in the box which has:

   (a) 3 thousands, 4 hundreds and 5 ones.

   (b) 9 hundreds, 2 ones, 3 tens and 5 thousands.

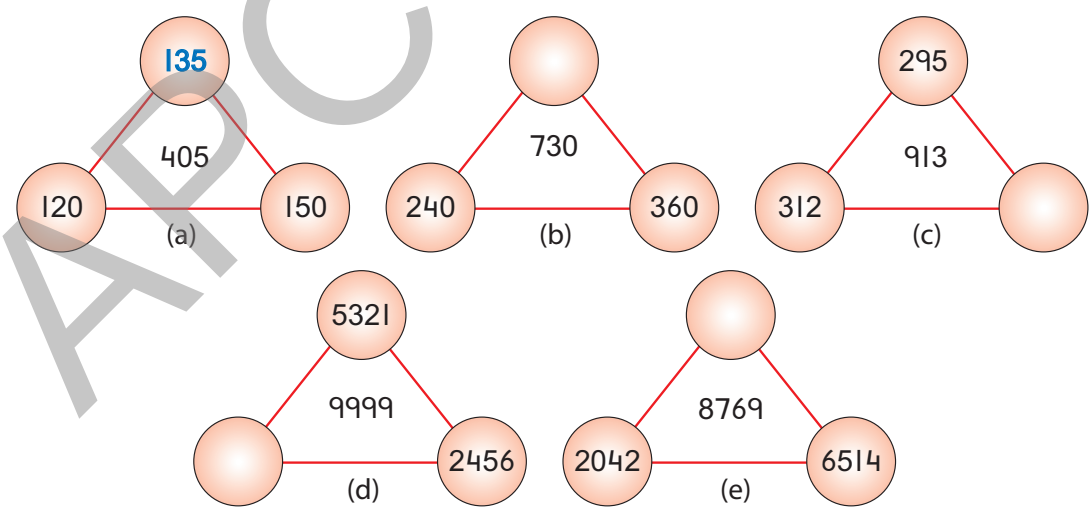
   (c) 8 tens, 4 hundreds and 6 thousands.

   (d) 9 thousands, 2 tens and 1 one.

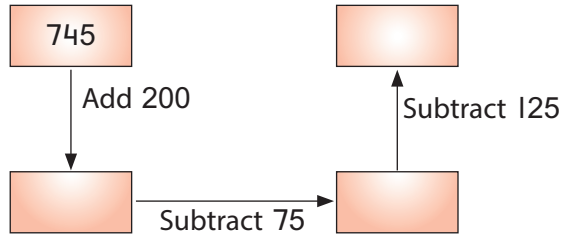
2. Use the digits given on the cards and form the largest and the smallest numbers of 4 digits.

   Largest _____ Smallest _____

3. In each group, split the number given in the triangle in three parts and fill the blank circles. First one is done for you.



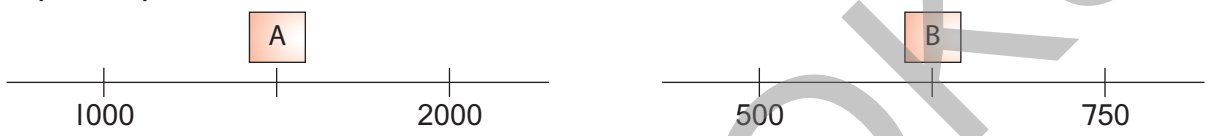
4. Do as directed and fill the correct numbers in the boxes:



What do you get in the end?

Do you know why?

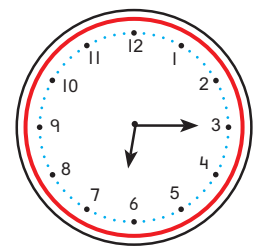
5. A and B are the mid-points of the two given numbers. What numbers will you put in place of A and B?



6. Round off to the nearest tens and find the actual and estimated sums of 126 and 311.

7. Round off to the nearest hundreds and find the actual and estimated differences of 5318 and 2935.

8. Look at the time in the clock and answer the following questions:

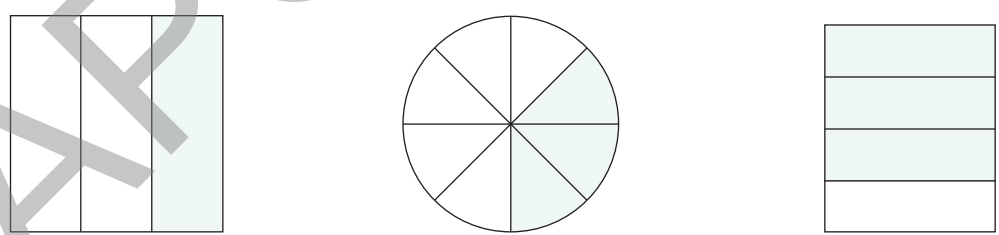


(a) What time is it? _____

(b) What time will it be after half an hour? _____

(c) What time was it 1 hour and 15 minutes ago? _____

9. Write the fractions in the boxes shown in the following figures by the shaded portions.



10. Write the answers in the given placeholders.

(a) 3 times 18 is _____ (b) 5 times 20 is _____ (c) 7 times 21 is _____

(d) 6 times 25 is _____ (e) 4 times 50 is _____ (f) 3 times 100 is _____

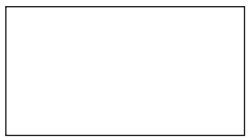
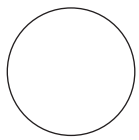
11. Anil has ₹8445 in his bank account, while Sumit has ₹6330 in his account. How much more money does Anil have?

12. Veena bought 3 kg 275 g potatoes and 2 kg 25 g tomatoes. How much total vegetables did she buy?

13. A bottle has 1 L 200 mL medicine in it. If each one of 275 patients is given 1 mL medicine, how much medicine is left in the bottle?

14. A long plastic pipe measures 32 m 8 cm. Aruna cut off 15 m 25 cm and Varun cut off 3 m 18 cm pipe from it. How much pipe is left?

15. Draw a mirror line in each of the following figures if possible: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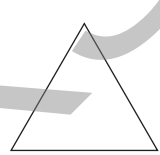


16. Amy arranges 124 wooden blocks equally in 4 rows. Find the number of blocks she puts in a row.

17. A man earns ₹240 by working in a field for a day. How much money does he earn at the end of the month in which he works for 28 days?

18. Draw a pictograph of the chocolates sold by four persons in a day:

Persons	Tina	Nina	Vivek	Rohit
No. of chocolates	45	60	30	55

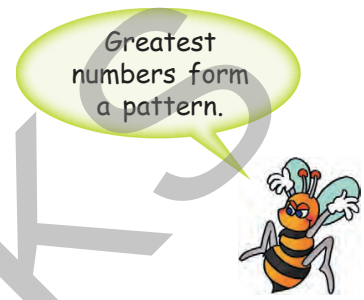
19. Fill in the blanks:
    (a) The first month of the year is _____ .
    (b) The minute hand takes _____ hour to complete a round.
    (c) In a non-leap year, February has _____ Sundays.
    (d) 180 minutes make _____ hours.

20. Ajay had 7 boxes of oranges containing 875 pieces. Supriya bought 4 boxes from him. How many pieces of oranges has Ajay now?

CHALLENGE

1. Give two multiples of 3 which add up to 39.
2. Give two multiples of 11 which add up to 77.
3. Write the smallest number of 4 digits with two different numerals.

1 Numbers and Number Names



In standard III, we have learnt that:

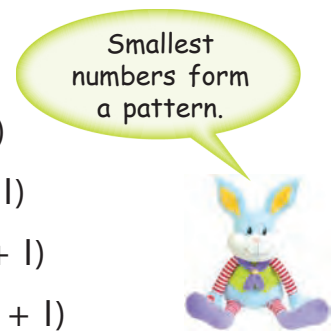
The greatest (largest) 1-digit number is 9

The greatest (largest) 2-digit number is 99

The greatest (largest) 3-digit number is 999

The greatest (largest) 4-digit number is 9999

We also obtained the smallest numbers by adding 1 to the greatest numbers as below:



The smallest 1-digit number is 1

The smallest 2-digit number is 10 (i.e., 9 + 1)

The smallest 3-digit number is 100 (i.e., 99 + 1)

The smallest 4-digit number is 1000 (i.e., 999 + 1)

The smallest 5-digit number is 10000 (i.e., 9999 + 1)

So, we see that 10000 is obtained by adding 1 to 9999. The number name for 10000 is "ten-thousand".

The place value chart for 10000 is given below:

T-Th	Th	H	T	O
1	0	0	0	0

READING A FIVE DIGIT NUMBER

Numeral	Place Value Chart	Number Name
10006	T-Th: 1, Th: 0, H: 0, T: 0, O: 6	Ten thousand six
12957	T-Th: 1, Th: 2, H: 9, T: 5, O: 7	Twelve thousand nine hundred fifty seven

70598	T-Th | Th | H | T | O 7 | 0 | 5 | ९ | 8	Seventy thousand five hundred ninety eight
९0657	T-Th | Th | H | T | O ९ | 0 | 6 | 5 | 7	Ninety thousand six hundred fifty seven
९5000	T-Th | Th | H | T | O ९ | 5 | 0 | 0 | 0	Ninety five thousand
९९009	T-Th | Th | H | T | O ९ | ९ | 0 | 0 | ९	Ninety nine thousand nine
९९९९९	T-Th | Th | H | T | O ९ | ९ | ९ | ९ | ९	Ninety nine thousand nine hundred ninety nine

९९९९९ is the largest 5-digit number.

Let us see, what number shall we get by adding 1 to ९९९९९.

९९९९९ + 1 = ९0000 + ९000 + ९00 + ९0 + ९ + 1

= ९0000 + ९000 + ९00 + ९0 + 10 (adding ones)

= ९0000 + ९000 + ९00 + 100 (adding tens)

= ९0000 + ९000 + 1000 (adding hundreds)

= ९0000 + 10000 (adding thousands)

= 100000 (adding ten-thousands)

100000 stands for 100 thousands. Its number name is "one lakh".

Thus **one hundred thousands = one lakh.**

100000 has six digits. It is one more than ९९९९९.

100000 is the smallest 6-digit number.

The place value chart for 1 lakh is

Lakh	Ten thousand	Thousand	Hundred	Ten	One
1	0	0	0	0	0

HOW TO WRITE LARGE NUMBERS

To write large numbers, we can put a comma to separate digits.

First comma is put after 3-digits from right, then after every 2-digits from right.

Let us write some large numbers using comma.

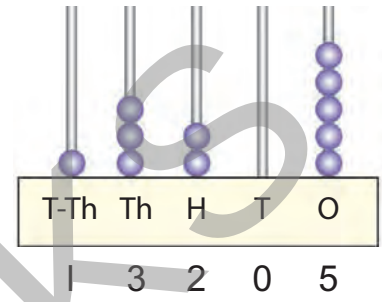
59650 is written as 59,650.

90278 is written as 90,278.

129543 is written as 1,29,543.

500647 is written as 5,00,647.

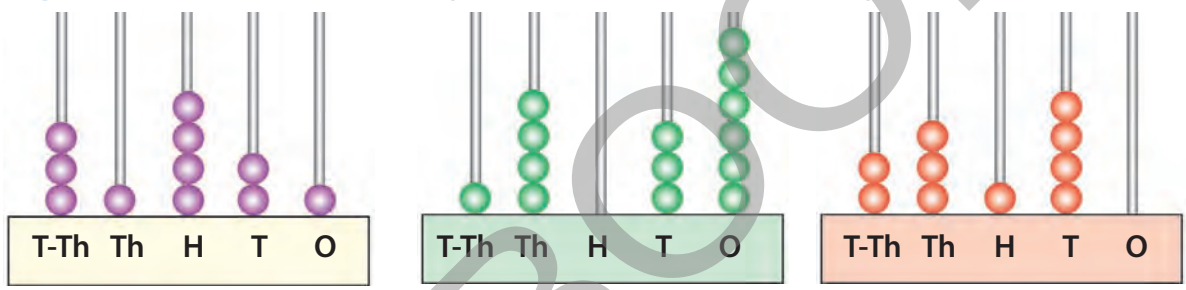
REPRESENTATION OF NUMBERS ON SPIKE ABACUS



We have learnt the representation of 4-digit numbers on a spike abacus in standard III. 13205, a 5-digit number is represented on the spike abacus as shown here.

Now study the following examples:

Example 1. Write the number represented on each of the spike abacus.



(a) (b) (c)

Solution. (a) 31421 (b) 14036 (c) 23140

Example 2. Write the following numbers:

(a) 1 more than 100 (b) 1 more than 10000

(c) 1 more than 999 (d) 1 more than 6998

Solution. (a) 101 (b) 10001 (c) 1000 (d) 6999

Example 3. Write the next four numbers starting from:

(a) 42982 (b) 53898.

Solution. (a) 42983, 42984, 42985, 42986

(b) 53899, 53900, 53901, 53902

Example 4. Counting by twos, write the numbers from 18726 to 18736.

Solution. The required numbers are:

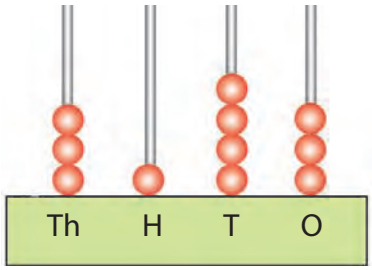
18726, 18728, 18730, 18732, 18734, 18736.

Example 5. Counting by hundreds, write four numbers starting with 35308.

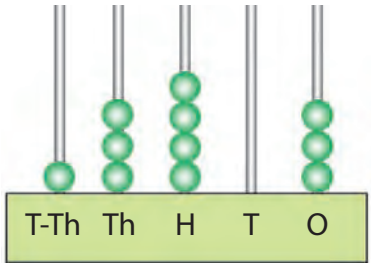
Solution. The numbers are: 35308, 35408, 35508, 35608.

EXERCISE 1.1

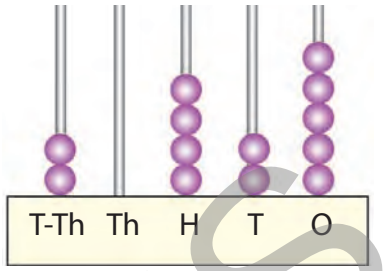
1. Write the numbers given on each of the following spike abacus:



(a)



(b)



(c)

2. Write the following numbers:
   (a) 1 more than 10
   (b) 1 more than 1200
   (c) 1 more than 34500
   (d) 1 more than 23499
   (e) 1 more than 9999
   (f) 1 more than 10000

3. For each of the following, write the next four numbers starting from:
   (a) 78963 (b) 14609 (c) 25025 (d) 21235

4. Write all the numbers between:
   (a) 18019 and 18025
   (b) 27515 and 27518

5. Fill in the blanks by observing the pattern carefully:
   (a) 44322, 44324, 44326, ..., ..., ..., ...
   (b) 12315, 12320, 12325, ..., ..., ..., ...
   (c) 98310, 98410, 98510, ..., ..., ..., ...
   (d) 22429, 23429, 24429, ..., ..., ..., ...
   (e) 97826, 97726, 97626, ..., ..., ...

6. Counting by fives, write the numbers from:
   (a) 15515 to 15535
   (b) 29331 to 29351

7. Counting by tens, write the numbers from:
   (a) 32420 to 32450
   (b) 99916 to 99946

8. Counting by hundreds, write five numbers starting from:
   (a) 43410
   (b) 35275

9. Counting by thousands, write four numbers starting from:
   (a) 77524
   (b) 96999

10. Write the smallest number of 5-digits.

11. Write the smallest number of 6-digits.

12. How many thousands are there in one lakh?

READING A 6-DIGIT NUMBER

Numeral	Number Name
2,59,039	Two lakh fifty nine thousand thirty nine
6,50,000	Six lakh fifty thousand
9,23,187	Nine lakh twenty three thousand one hundred eighty seven
8,06,001	Eight lakh six thousand one
1,00,001	One lakh one
1,10,100	One lakh ten thousand one hundred

EXERCISE 1.2

1. Write the correct numeral in the table.

(a) 5 ten-thousands 3 thousands 0 hundreds 5 tens 4 ones.

(b) 4 ten-thousands 9 thousands 1 hundred 0 tens 9 ones.

(c) 9 ten-thousands 0 thousands 0 hundreds 4 tens 3 ones.

T-Th	Th	H	T	O

2. Fill in the box with correct numeral:

2489 = ☐ thousands 4 hundreds 8 tens 9 ones.

38206 = ☐ ten-thousands ☐ thousands ☐ hundreds 0 tens ☐ ones.

75794 = 7 ten-thousands 5 thousands ☐ hundreds ☐ tens 4 ones.

80413 = ☐ ten-thousands 0 thousands ☐ hundreds ☐ ten 3 ones.

3. Write the number names for the following numbers:

(a) 54792 (b) 80576 (c) 16509 (d) 99087

(e) 60039 (f) 50005 (g) 29000 (h) 77070

4. Write the following numbers in figures:

(a) Eight thousand nine hundred thirty six.

(b) Seventy thousand five hundred ninety nine.

(c) Ninety five thousand ninety five.

(d) Sixty thousand sixty.

(e) Fifty nine thousand nine hundred.

(f) Thirty seven thousand seven hundred eight.

(g) Ninety thousand.

(h) Twenty two thousand fifty eight.

PLACE VALUE

We have already learnt in previous classes that the place value of a digit depends on its position in the number. Here we shall extend the idea in respect of a number of 5-digits.

Example 1. Find the place value of each digit in 23405 in figures and words.

Solution.

Number					Place value	
2	3	4	0	5	In figures	In words
				5 ones	5	Five
				0 tens	0	Zero
				4 hundreds	400	Four hundred
				3 thousands	3000	Three thousand
				2 ten-thousands	20000	Twenty thousand

Face value of a digit remains unchanged.

Example 2. Find the place value of 7 and 9 in 67894.

Solution. 7 appears at the thousands place in 67894.

∴ The place value of 7 is 7 thousands, i.e., 7000.

9 appears at the tens place in the given number.

∴ The place value of 9 is 9 tens, i.e., 90.

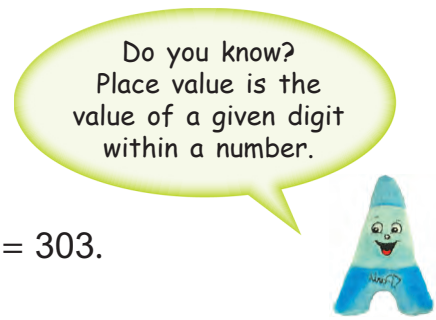
Example 3. Find the sum of the place values of 3's in the number 42303.

Solution. In 42303, the place value of:

3 in hundreds place is 300

3 in ones place is 3

∴ Sum of the place values = 300 + 3 = 303.



EXERCISE 1.3

Write the place value of:

1. 4 in 34521.
2. 8 in 83409.
3. 3 in 25394.
4. 7 in 12307.
5. 2 in 54092.
6. 0 in 40398.
7. 5's in 35452.
8. 7's in 72739.
9. Write the place value of two 4's in 34541 in words.
10. Here is the meter reading of Kumar's car. 56754

    Answer the following questions:

    (a) When 1000 km more is travelled, which digit will change?

    (b) To change the digit 7 to 8, how much more distance needs to be travelled?

    (c) How many times is the 5 on the left greater than the 5 on the right?
11. Underline the correct place value of 7 in each number. The first one is done for you.

Number	Place Value			
27591	70	7000	700	7
35719	70	7000	700	7
75462	70	70000	7000	700
12471	70	70000	7000	700
63007	70	70000	700	7

12. Write the place value of two 3's in the number 23346. Is one value ten times the other?
13. Find the sum of the place values of the coloured digits:

    (a) **5** 6 9 **5** 2 (b) 3 **4** **4** 2 **4** (c) **7** 6 **7** 4 **7** (d) **6** 3 **6** 0 **6**
14. Rewrite the following numbers by interchanging the digits at the thousands and ones places:

    Example: 15603 → 13605.

    (a) 18095 (b) 27531 (c) 80359 (d) 44300
15. Rewrite the following numbers by interchanging the digits at the tens and ten-thousands places:

    (a) 74315 (b) 30549 (c) 76920 (d) 85076

EXPANDED FORM

We have already learnt the method of writing 4-digit numbers in the expanded form. Here we shall learn how to write 5-digit numbers in the expanded form.

Example 1. Write 5609 in the expanded form.

Solution. ∵ 5609 has 5 thousands, 6 hundreds, 0 tens, 9 ones

∴ 5609 = 5000 + 600 + 0 + 9 = 5000 + 600 + 9

Example 2. Write 35619 in the expanded form.

Solution. 35619 has 3 ten-thousands, 5 thousands, 6 hundreds, 1 ten, 9 ones.

∴ 35619 = 30000 + 5000 + 600 + 10 + 9.

Example 3. Write in short form:

(a) 7000 + 500 + 40 + 6 (b) 40000 + 5000 + 30 + 2

Solution. (a) 7000 + 500 + 40 + 6

= 7 thousands, 5 hundreds, 4 tens, 6 ones = 7546.

(b) 40000 + 5000 + 30 + 2

= 4 ten-thousands, 5 thousands, 0 hundreds, 3 tens, 2 ones

= 45 thousands, 0 hundreds, 3 tens, 2 ones = 45032.

Example 4. How many hundreds are there in 6729?

Solution. 6729 = 6000 + 700 + 20 + 9

= 60 hundreds + 7 hundreds + 2 tens + 9 ones

= 67 hundreds + 2 tens + 9 ones

∴ There are 67 hundreds in 6729.

EXERCISE 1.4

1. Write the following in the expanded form:
   (a) 5398 (b) 47508 (c) 99990
   (d) 53083 (e) 40203 (f) 50678
2. Write the following in the short form:
   (a) 50000 + 6000 + 700 + 80 + 1 (b) 70000 + 8000 + 80 + 5
   (c) 90000 + 4000 + 700 + 60 (d) 10000 + 800 + 20 + 3
   (e) 20000 + 5000 + 20 (f) 40000 + 700 + 4
   (g) 80000 + 60 + 3
   (h) 3 ten-thousands, 4 thousands, 2 hundreds, 5 tens, 0 ones
   (i) 47 thousands, 3 hundreds, 9 ones
3. Which one of the following is the expanded form of 58604?
   (a) 50000 + 8000 + 60 + 4 (b) 50000 + 8000 + 600 + 4
   (c) 50000 + 800 + 60 + 4 (d) 50000 + 8000 + 600 + 40

4. Find the correct break up (expanded form) from the following for 77077:

(a) 70000 + 7000 + 700 + 7 (b) 70000 + 700 + 70 + 7

(c) 70000 + 7000 + 700 + 70 + 7 (d) 70000 + 7000 + 70 + 7

How many are:

5. hundreds in 3705? **6.** thousands in 43981? **7.** hundreds in 37509?

8. tens in 695? **9.** tens in 3578?

ORDER RELATION

We have learnt the method of finding the greater of the two given 4-digit numbers. To compare 5-digit numbers, we follow the same rule.

We also know that:

Rule. A number containing more digits is greater than the number containing less digits.

For example, 15 > 7; 163 > 53; 3150 > 999

Example 1. Which is greater: 84321 or 9847?

Solution. The number 84321 has more digits than the number 9847.

∴ 84321 > 9847.

We also know that:

Rule. If two numbers contain the same number of digits, we compare them by their leftmost digits. If the leftmost digits are also the same, we compare them by their next digits to the right and so on.

Example 2. Which is smaller: 82361 or 98754?

Solution. 82361 has 8 ten-thousands.

98754 has 9 ten-thousands.

But we know that 8 ten-thousands are less than 9 ten-thousands.

∴ 82361 is smaller than 98754

or 82361 < 98754

Example 3. Which is greater: 62389 or 62754?

Solution. 62389 has 6 ten-thousands and 2 thousands.

62754 also has 6 ten-thousands and 2 thousands.

Since both the numbers have same digits at the ten-thousands and thousands places, so we compare the digits at the hundreds places.

62389 has the digit 3 at the hundreds place.

62754 has the digit 7 at the hundreds place.

Since 7 is greater than 3,

∴ 62754 is greater than 62389 or 62754 > 62389.

Short Cut

✓	✓	✗		
6	2	3	8	9
6	2	7	5	4

7 > 3

∴ 62754 > 62389

Place the numbers one below the other.

Tick (✓) the same digits and cross (✗) the 1st different digits from the left. Compare the different digits.

ASCENDING-DESCENDING ORDER

Ascending order means the increasing order. While writing the given group of numbers in the ascending order, we first write the smallest number and then the next greater number. Like this we keep on writing the next greater number and lastly, we write the greatest number.

Descending order means the decreasing order. While writing the given group of numbers in descending order, we first write the greatest number and then the next smaller number. Like this we keep on writing the next smaller number and lastly, we write the smallest number.

Example 4. Arrange the following numbers in ascending order:

15635, 15389, 28707, 2791, 489.

Solution. Here the smallest number is 489. The next number greater than 489 is 2791. The other numbers greater than 2791 in order are: 15389, 15635 and 28707.

∴ The given numbers when arranged in ascending order are:

489, 2791, 15389, 15635, 28707.

Example 5. Arrange the following numbers in descending order using symbols:

5035, 42801, 1506, 27391, 41752.

Solution. Here the greatest number is 42801. The next number smaller than 42801 is 41752. The other numbers less than 41752 in order are: 27391, 5035 and 1506.

∴ The given numbers when arranged in descending order are:

42801 > 41752 > 27391 > 5035 > 1506.

FORMATION OF GREATEST AND SMALLEST NUMBERS

We know how to form the greatest and the smallest number of 3 digits with the given digits. We adopt the same procedure in case of numbers of 4 or 5 digits. We explain the procedure below:

Case I. When the digits are not repeated.

For the **greatest number of 4 digits**, write the greatest digit out of the given digits in the thousands place, the next smaller digit in the hundreds place, next smaller digit in the tens place and the smallest digit in the ones place.

For example, if the given digits are 3, 9, 0 and 5, then the greatest number of 4 digits is 9530.

For the **greatest number of 5 digits**, write the greatest digit in the ten-thousands place, next smaller digit in the thousands place and so on.

For example, if the given digits are 4, 6, 8, 0 and 2, then the greatest number of 5 digits is 86420.

For the **smallest number of 4 digits**, write the smallest digit out of the given digits in the thousands place, the next greater digit in the hundreds place, still greater digit in the tens place and the greatest digit in the ones place.

For example, if the given digits are 8, 2, 3 and 9, then the smallest number of 4 digits is 2389.

For the **smallest number of 5 digits**, write the smallest digit in the ten-thousands place, next greater digit in the thousands place and so on.

For example, if the given digits are 7, 5, 3, 1 and 2, then the smallest number of 5 digits is 12357.

When the given digits are 6, 2, 3, 0 and 4, then the smallest number of 5 digits is 20346.

02346 is actually 2346, which is a 4-digit number.

Example 6. Write the greatest and the smallest 4-digit numbers with the digits 3, 9, 2 and 5 (digits not to be repeated).

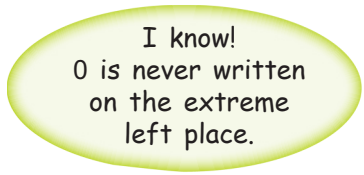
Solution. The greatest 4-digit number = 9532.

The smallest 4-digit number = 2359.

Example 7. Write the greatest and the smallest 5-digit numbers with the digits 5, 3, 7, 9 and 0 (digits not to be repeated).

Solution. The greatest 5-digit number = 97530.

The smallest 5-digit number = 30579.



Case 2. When the digits are repeated.

For the **greatest 4-digit or 5-digit numbers**, write the smallest digit at the ones place, write the next greater digit at the tens place and so on till all the digits are used. Repeat the greatest digit at the remaining places.

For example, if the given digits are 2, 1, 8, then the greatest number of 4 digits is 8821.

The greatest number of 5 digits is 88821.

For the **smallest 4-digit or 5-digit numbers**, write the greatest digit at the ones place, write the next smaller digit at the tens place and so on till all the digits are used. Repeat the smallest digit at the remaining places.

For example, if the given digits are 2, 7, 5, then the smallest 4-digit number is 2257.

The smallest 5-digit number is 22257.

Example 8. Write the greatest and the smallest 4-digit number, using all the digits 6, 1, 4.

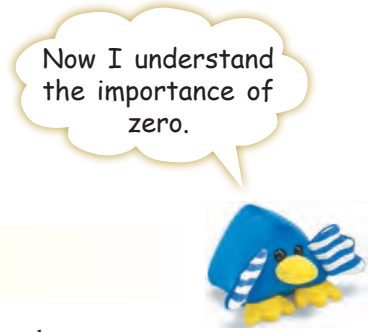
Solution. The greatest 4-digit number = 6641.

The smallest 4-digit number = 1146.

Example 9. Write the greatest and the smallest 5-digit numbers by using all the digits 2, 0, 5, 6.

Solution. The greatest 5-digit number = 66520

The smallest 5-digit number = 20056



EXERCISE 1.5

Put > or < or = in the blanks to make the given sentences true:

1. 1531 907
2. 999 9990
3. 5410 4501
4. 89031 8891
5. 96345 70989
6. 19090 19909
7. 20312 ..... twenty thousand three hundred twelve.
8. 41316 ..... 40000 + 1000 + 300 + 10 + 6
9. 29302 ..... twenty nine thousand three hundred twenty.

10. Find the greatest and the least numbers in each group of numbers:

(a)	25303	25330	23503	23305
(b)	90909	90099	99009	99000
(c)	27008	27800	27000	27080
(d)	41655	41556	41665	41565

11. Rearrange the following numbers in ascending order:
(a) 10800, 18100, 2056, 576, 5072. (b) 5500, 50055, 8801, 995, 250
(c) 3001, 432, 14032, 41231, 42103 (d) 90909, 99009, 90099, 90009, 99000

12. Rearrange the following numbers in descending order:
(a) 29712, 9787, 19503, 29811, 11111 (b) 16306, 990, 1990, 21001, 25603
(c) 11314, 17314, 73411, 70329, 45069 (d) 6606, 66066, 60666, 66606, 66006

13. Say which of the following groups of numbers are arranged in descending or ascending order:
(a) 2500, 25001, 29801, 92000, 92300
(b) 1361, 13160, 21519, 25009, 29119
(c) 27011, 27000, 26903, 17989, 11306, 1525
(d) 25001, 24307, 20900, 18385, 10025, 9312

14. Write the greatest and smallest 4-digit numbers using all the digits from the following:
(a) 8, 4, 6, 2 (b) 3, 9, 1, 7 (c) 7, 3, 0, 9 (d) 2, 0, 6, 5

15. Write the greatest and smallest 5-digit numbers using all the digits from the following:
(a) 5, 3, 1, 6, 9 (b) 9, 2, 8, 3, 6 (c) 7, 5, 9, 0, 3 (d) 1, 5, 0, 8, 2

16. Write the greatest and smallest 4-digit numbers using all the digits (repetition allowed) from the following:
(a) 2, 7, 4 (b) 1, 5, 0 (c) 3, 6

17. Write the greatest and the smallest 5-digit numbers using all the digits (repetition allowed) from the following:
(a) 2, 7, 6, 8 (b) 3, 0, 2, 4 (c) 4, 0, 1

18. Change the positions of the digits, if necessary, to get the smallest 5-digit number.
(a) 13985 (b) 84457 (c) 20356 (d) 40308

19. Change the positions of the digits, if necessary, to get the greatest 5-digit number:
(a) 71538 (b) 53585 (c) 95064 (d) 80601

20. Write the greatest 4-digit number using:
(a) only one digit

(b) all different digits

(c) all different digits but 3 in hundreds place.

21. Write the smallest 5-digit number using:

(a) all different digits

(b) 2 different digits

(c) only two different digits with 3 in the ten-thousands place

(d) 3 different digits with 6 in the tens place

(e) 3 different digits with 4 in the thousands place and 1 in the tens place.

22. Write all possible 3-digit numbers using each of the digits 2, 8, 5 (only once) and then arrange them in ascending order.

23. Write all possible 3-digit numbers using each of the digits 3, 0, 2 (only once) and then arrange them in descending order.

CHALLENGE

Which has greater value:

(a) 43968 one-rupee coins or forty three thousand six hundred ninety-eight one-rupee notes?

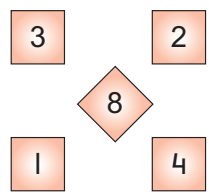
(b) 86752 one-rupee notes or eight thousand six hundred seventy-five ten-rupee notes?

ACTIVITY

The teacher should divide the whole class into groups (say 4 groups) and if possible assign a name to each group, e.g., Shivaji, Laxmi Bai, Bhagat Singh, Maharana Pratap. Then he prepares 4 sets of digit cards (one set is shown here) and gives one set to each group.

Let the sets of cards prepared by the teacher and given to groups is:

A set of cards



- 8, 3, 4, 2, 1 to Shivaji
- 7, 0, 3, 4, 9 to Laxmi Bai
- 6, 5, 3, 1, 4 to Bhagat Singh
- 9, 4, 5, 6, 0 to Maharana Pratap

Now let the children of each group write (without repetition of digits) as many 5-digit numbers as possible on a sheet of paper.

Who is the Winner?

The group that forms the maximum numbers in the shortest time.

Note: Another activity may be conducted where repetition of numbers is allowed.

Chapter Test

Time: 30 minutes **M.M. 10**

Note: *Each question is of 2 marks.*

Space for rough work

1. Write the number names:

(a) 53012

_____

(b) 40067

_____

2. Arrange 20813, 20625, 19398, 27910, 1427 in ascending order:

_____

3. Write the greatest and smallest numbers of 5 digits with 4, 0, 3.

Greatest number _____

Smallest number _____

4. Write in figures:

(a) Twenty thousand one hundred nine _____

(b) Seventy nine thousand fifteen _____

5. Encircle the correct answer from the given options:

(a) The correct break up for 60606 is

(i) 6000 + 600 + 60 (ii) 60000 + 600 + 6

(iii) 60000 + 6000 + 6 (iv) 60000 + 600 + 60

(b) The number 14708 has

(i) 47 hundreds (ii) 47 thousands

(iii) 147 hundreds (iv) 147 tens

2 Roman Numerals

In class III, we have learnt the method of writing numbers up to ten thousand. We used ten numerals (symbols), i.e., 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 for writing these numbers. These numerals were first used by Hindus and then by Arabians. So these numerals are called **Hindu-Arabic numerals**. These numerals are now used all over the world and are thus called **international numerals**.

In India, people speak different regional languages and so use different regional numerals for writing numbers. For example, the numeral used for writing the number four in Hindi (Devnagri) is ४ and in Urdu it is written as ۴.

ROMAN NUMERALS

Romans used other symbols for writing numbers. They used only seven basic symbols. They are I, V, X, L, C, D and M. Their respective values are given in the following table:

I	V	X	L	C	D	M
1	5	10	50	100	500	1000

In this class, we shall learn the use of only first three symbols, i.e., I, V and X. With the help of these three symbols we can write numbers up to thirty nine. According to the convention, the compound symbols are formed by the rules given below:

(a) Repetition of I and X means addition, e.g.,

II = 1 + 1 = 2 III = 1 + 1 + 1 = 3

XX = 10 + 10 = 20 XXX = 10 + 10 + 10 = 30

Note I and X can be repeated at the most three times. **V is never repeated.**

(b) If a smaller number is written to the right of a larger one, then smaller is added to the larger, e.g.,

VI = 5 + 1 = 6; XII = 10 + 1 + 1 = 12; XV = 10 + 5 = 15

(c) If I is written to the left of V or X, it is subtracted, e.g.,

IV = 5 – 1 = 4; IX = 10 – 1 = 9.

Note V is never written to the left of X. I is written only once to the left of V and X.

(d) For numbers between 10 and 40, we first write the number in groups of tens and ones and then write the Roman numeral, e.g.,

22 = 10 + 10 + 2 = XXII; 39 = 10 + 10 + 10 + 9 = XXXIX.

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

(a) IX (b) XVI (c) XIX

(d) XIV (e) XXXV (f) XXXVII

Solution.

(a) IX = 9 (b) XVI = 10 + 6 = 16

(c) XIX = 10 + 9 = 19 (d) XIV = 10 + 4 = 14

(e) XXXV = 30 + 5 = 35 (f) XXXVII = 30 + 7 = 37

Example 2. Write the following in Roman numerals:

(a) 7 (b) 15 (c) 28 (d) 32

(e) 21 (f) 17 (g) 23 (h) 24

Solution.

(a) 7 = VII (b) 15 = 10 + 5 = XV

(c) 28 = 10 + 10 + 8 = XXVIII (d) 32 = 10 + 10 + 10 + 2 = XXXII

(e) 21 = 10 + 10 + 1 = XXI (f) 17 = 10 + 7 = XVII

(g) 23 = 10 + 10 + 3 = XXIII (h) 24 = 10 + 10 + 4 = XXIV

Example 3. Correct the following by changing the place of one matchstick only:

(a) 

(b) 

(c) 

Solution.

(a) 

(b) 

(c) 

Note There may be more than one solution.

EXERCISE 2.1

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

(a) VII (b) XII (c) XXVII (d) XXXVI

(e) XXV (f) XXXI (g) XVIII (h) XXIII

2. Fill in the boxes by using >, < or =, to make a correct sentence:

(a) XIII ☐ 15 (b) XIX ☐ 21

(c) XXIV ☐ 19 (d) XXIX ☐ 29

(e) XXXV ☐ 23 (f) XXXI ☐ 21

3. Read and match the time on the following watches:

6:10

11:15

10:25

1:30

4. Write the following in Roman numerals:

(a) 2 (b) 11 (c) 13 (d) 26

(e) 32 (f) 34 (g) 39 (h) 37

5. Which of the following are correct statements?

(a) IXX = 19 (b) VX = 5 (c) XXIX = 29 (d) XXXIV = 34

(e) XXIV = 24 (f) XIIV = 17 (g) VVV = 15 (h) IIV = 3

6. Join the correct numerals by arrows:

(a) XXVI	(A) 22
(b) XXII	(B) 34
(c) XXXIV	(C) 19
(d) XIX	(D) 26

7. Using two matchsticks, we can make the adjoining Roman numerals:

(a) Make as many Roman numerals as possible by using

(i) 3 matchsticks (ii) 5 matchsticks

(b) How many matchsticks will be needed to write the following in Roman numerals?

(i) 29 (ii) 33 (iii) 18 (iv) 36

CHALLENGE

Correct the following by changing the place of one matchstick only in each equation:

(a) XX + II = XIX (b) XII + IV = XVIII

(c) VIII − II = IV (d) XXIX − IV = XXVII

ACTIVITY

The teacher should give 10 matchsticks to each student and ask questions like:

1. Make a Roman numeral by using all of them.
2. Make a mathematical statement using all of them

e.g., V + II = VII

Note

1. If the teacher wishes, he may ask the students not to use sticks for the sign of + and − then make the statement e.g.,

X + III = XIII

2. Don't expect the students to know beyond the number 39.

Chapter Test

Time: 30 minutes **M.M. 10**

Note: *Each question is of 2 marks.*

Space for rough work

1. Write in Roman numerals:

(a) 19 _____

(b) 34 _____

2. Write in Hindu-Arabic numerals:

(a) XXIX _____

(b) XVI _____

3. Use > or < or = to make a correct statement:

(a) XXII _____ XIV

(b) XXXIX _____ 53

4. Correct and rewrite the given statements:

(a) IXV = 16 _____

(b) XVX = 25 _____

5. Encircle the correct answer from the given options:

(a) The correct Roman numeral is

(i) IIXV (ii) XIIV

(iii) XXIV (iv) IXIV

(b) Using 4 matchsticks, the number of Roman numerals that can be made (up to 39) is

(i) 4 (ii) 3

(iii) 2 (iv) 5

3 Addition

In standard III, we have learnt the addition of 3-digit and 4-digit numbers (without carrying) and the addition of 3-digit numbers with carrying. In this chapter, we shall learn the addition of 5-digit numbers (without carrying) and the addition of 4-digit or 5-digit numbers with carrying or regrouping.

The numbers that are added together are called **addends** and the result obtained after addition is called **Sum**.

ADDITION WITHOUT CARRYING

We know the method of addition of two or three 4-digit numbers without carrying. In the same way we add numbers of 5 digits.

Example 1. Add 14385 and 53402.

Solution. We write the given numbers in columns and add.

					O
	1	4	3	8	5
+	5	3	4	0	2
					7

				T	**O**
	1	4	3	8	5
+	5	3	4	0	2
				8	7

			H	**T**	**O**
	1	4	3	8	5
+	5	3	4	0	2
			7	8	7

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

T-th	**Th**	**H**	**T**	**O**	
1	4	3	8	5	
+ 5	3	4	0	2	
6	7	7	8	7	

Start with **ones**, then move to **tens**, go to **hundreds**, then reach **thousands** and lastly go one step further—add **ten-thousands**.

$\therefore$ **14385 + 53402 = 67787**

ADDITION WITH CARRYING (REGROUPING)

We have learnt the addition of 3-digit numbers (with carrying). Same rule will be applied for adding 4-digit and 5-digit numbers.

Example 2. Add: 3476 and 2865.

Solution. Putting numbers in the column form:

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

Explanation

Adding ones: $6 + 5 = 11$ ones

$= 1\ T + 1$ one

Carried to tens

Adding tens: $1 + 7 + 6 = 14$ tens

$= 1\ H + 4$ tens

Carried to hundreds

Adding hundreds: $1 + 4 + 8 = 13$ hundreds

$= 1\ Th + 3$ hundreds

Carried to thousands

Adding thousands: $1 + 3 + 2 = 6$ thousands

$\therefore$ **3476 + 2865 = 6341**

Remember to regroup!

10 ones = 1 ten

10 tens = 1 hundred

10 hundreds = 1 thousand

10 thousands = 1 T-thousand

Example 3. Add together: 27346 and 43584.

Solution. Putting numbers in column form and adding:

Regroup thousands into T-thousands.

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

Example 4. Add together: 25839, 43476 and 4824. Write the sum in words.

Solution. Putting numbers in column form and adding:

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

∴ **25839 + 43476 + 4824 = 74139**

74139 = Seventy four thousand one hundred thirty nine.

EXERCISE 3.1

Add:

1.

	T-Th	Th	H	T	O
	2	5	0	2	1
+	1	2	9	6	7

2.

	T-Th	Th	H	T	O
	3	6	7	2	8
+	4	3	0	6	1

3.

	4	5	6	3	0
+	2	0	1	4	9

4.

	5	0	8	2	9
+	3	7	1	6	0

5.

	3	4	0	5	6
+	3	2	9	3	1
+	1	0	0	1	2

6.

	2	3	0	4	5
+	1	1	6	2	1
+		4	2	3	2

7.
$$\begin{array}{r} 4198 \\ +\ 2964 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 5734 \\ +\ 1879 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 6308 \\ +\ 2943 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 5397 \\ +\ 2823 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 4364 \\ +\ 2698 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 6835 \\ +\ 1784 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 2473 \\ +\ 6189 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 3068 \\ +\ 2052 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 8594 \\ +\ \ 687 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 6874 \\ +\ 7639 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 6529 \\ +\ 4688 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 8894 \\ +\ 3456 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 5805 \\ +\ \ 733 \\ +\ 2541 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 4309 \\ +\ 1982 \\ +\ 1543 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 1681 \\ +\ 6352 \\ +\ 1281 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 62775 \\ +\ 24829 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 15629 \\ +\ 26996 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 67853 \\ +\ 25698 \\ \hline \end{array}$$

25.
$$\begin{array}{r} 35697 \\ +\ 46028 \\ \hline \end{array}$$

26.
$$\begin{array}{r} 53809 \\ +\ 36796 \\ \hline \end{array}$$

27.
$$\begin{array}{r} 23876 \\ +\ 71985 \\ \hline \end{array}$$

28.
$$\begin{array}{r} 47259 \\ +\ 19831 \\ \hline \end{array}$$

29.
$$\begin{array}{r} 45467 \\ +\ \ 6693 \\ \hline \end{array}$$

30.

	2	7	4	9	5
+	1	8	9	3	1
+	2	4	1	7	5

31.

	2	3	4	6	9
+	3	5	6	0	8
+	1	4	7	9	2

Write in columns and add:

32. 5369 + 178

33. 4908 + 2597

34. 3003 + 890 + 409

35. 37829 + 4567

36. 49739 + 2648

37. 48769 + 19873

Add and write the sum in words:

38. 5608 + 1719 + 318

39. 53937 + 18078 + 697

WORD PROBLEMS

The concept of addition is used in many daily life situations. We should read the problem and find out what is to be done. Then solve it.

Let us consider the following examples:

Example 1. A factory produced 2545 bulbs on Monday and 2869 on Tuesday. How many bulbs are produced altogether in two days? Write the number sentence and the solution sentence.

Solution.

Add and regroup

		1	1	1	
Bulbs produced on Monday	=	2	5	4	5
Bulbs produced on Tuesday	=	2	8	6	9
Bulbs produced in two days	=	5	4	1	4

Number sentence is: 2545 + 2869 = 5414.

Solution sentence is: 5414 bulbs are produced in 2 days.

Example 2. Boy scouts sold 13874 stickers. Girl guides sold 29239 stickers. How many stickers did they sell? Write the solution sentence.

Solution.

		1	1	1	1	
Stickers sold by scouts	=	1	3	8	7	4
Stickers sold by guides	=	2	9	2	3	9
Total stickers sold	=	4	3	1	1	3

Easy! Just add the numbers

Solution sentence:

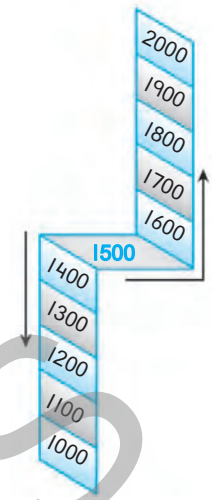
They sold 43113 stickers.

EXERCISE 3.2

1. There are 4089 bags of wheat and 1896 bags of sugar in a store. Find the total number of bags in the store. Write the number sentence and solution sentence.
2. A factory produced 5385 cakes on Monday and 3897 cakes on Tuesday. How many cakes were produced in two days?
3. A shopkeeper bought 4583 nuts and 2836 bolts. How many pieces did he buy in all? Write the number sentence and solution sentence.
4. There are 3786 men, 2983 women and 3508 children in a village. What is the total population of this village?
5. There are 3527 cows, 4809 buffaloes and 1283 other cattle in a village. How many total cattle are in that village?
6. In an election Abdul got 3825 votes and Vimal got 1309 votes more than Abdul. How many votes did Vimal get? How many votes did both of them get altogether?
7. A postman delivered 28753 letters in January and 12391 letters in February. How many letters did he deliver in two months?
8. Kumar has 12539 stamps and Rita has 34818 stamps in their albums. How many stamps do they have altogether?
9. Reena subtracted 23789 from a number. The remainder was 9805. What was the number she started with? Write the number sentence.
10. Neha lost her ring. Her husband bought her another ring that cost ₹5896 more than the previous one. If the cost of the old ring was ₹3429, find the cost of the new ring. Write the number sentence and the solution sentence.
11. The male population of a village is 830 more than the female population. Find the male population and the total population if the female population is 23512.
12. The cost of a scooter is ₹5685 more than the cost of a T.V. If the cost of the T.V. is ₹22643, find the total cost of scooter and T.V.
13. A milk booth sold 25802, 22729 and 29083 litres milk in the last quarter of 2012. How much total milk was sold in the last quarter?
14. Three ropes are 52381 metres, 22832 metres and 5912 metres long respectively. Find the total length of these ropes. Write the number sentence.
15. A school library has 25035 books in English, 48509 books in Hindi and 12999 books in other languages. How many books are there in the library?

    Write the solution sentence.
16. Rajesh spent ₹68935 during the year on food and clothing. He paid ₹24840 as rent for the house in that year. He saved ₹5350. How much did he earn during the year?

ESTIMATING THE SUM



We have learnt in standard III, the method of rounding off a number to the nearest tens or hundreds. In the same way, to round off a number to the nearest thousands or ten-thousands, we consider the number at the hundreds place or thousands place respectively and move up or move down. If the number at the hundreds or thousands place is 5 or more, we move up to thousands or ten-thousands place respectively otherwise move down.

Example 1. Round off each of the following to the nearest

(a) thousands (b) ten-thousands.

(i) 13880 (ii) 25318

Solution. To round off a number to thousands place, check the digit at hundred's place.

If it is ≥ 5 increase the thousands digit by 1 otherwise remains same.

(i) 13880 is rounded off to the nearest thousands as 14000.
13880 is rounded off to the nearest ten-thousands as 10000.

(ii) 25318 is rounded off to the nearest thousands as 25000.
25318 is rounded off to the nearest ten-thousands as 30000.

Example 2. Add 4130 and 4849. Find the actual sum and compare it with the estimated sum.

Solution. Since the numbers have 4 digits, so we round off to the nearest thousands.

Actual Sum		Estimated Sum
4130	→	4000
+ 4849	→	+ 5000
8979		9000

The actual sum 8979 is quite near to the estimated sum 9000.

Example 3. Kunal bought a shirt for ₹ 482 and a trouser for ₹ 947. Estimate the cost he has to pay to the shopkeeper and then compare with the actual cost.

Solution.

Estimated cost of a shirt = ₹ 500
Estimated cost of a trouser = ₹ 900
Total estimated cost = ₹ (500 + 900)
= ₹ 1400
Actual cost = ₹ (482 + 947)
= ₹ 1429

Estimated cost is very close to the actual cost.

EXERCISE 3.3

1. Round off to the nearest thousands:
   (a) 8312 (b) 12605
2. Round off to the nearest ten-thousands:
   (a) 23809 (b) 78114
3. Find the actual and estimated sum by rounding off to the nearest thousands:

	Actual	Estimated		Actual	Estimated
(a)	3281		(b)	18312	
	+ 4930			+ 24109	

4. Find the actual and estimated sum by rounding off to the nearest ten-thousands:

	Actual	Estimated		Actual	Estimated
(a)	78515		(b)	32978	
	+ 13290			+ 45103	

5. Abhay spent ₹ 2310 on shoes and ₹ 1872 on books. Estimate the total cost he has to pay.
6. Rohan bought the following:
   An old car = ₹ 71819
   A new scooter = ₹ 22010
   Estimate the total cost.

Framing Word Problems (Story Writing)

We have learnt the method of framing a word problem when a number sentence is given. Different word problems can be framed for a single number sentence. We take up an example given below.

For the number sentence 4380 + 7638 = ?

We can frame following word problems:

(a) A milk booth sold 4380 litres milk on Monday and 7638 litres on Tuesday. Estimate the milk sold in two days.

(b) A shop has 4380 pairs of gents shoes and 7638 pairs of ladies shoes. How many pairs of shoes are there in the shop?

(c) There are 4380 girls and 7638 boys in a school. Estimate the total strength of the school.

EXERCISE 3.4

Frame a word problem (write a story) of your own for each of the following:

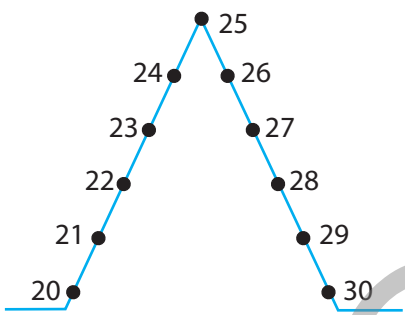
1. 86 + 78 = ?
2. 512 + 689 = ?
3. 1849 + 7439 = ?
4. 21715 + 49486 = ?

CHALLENGE

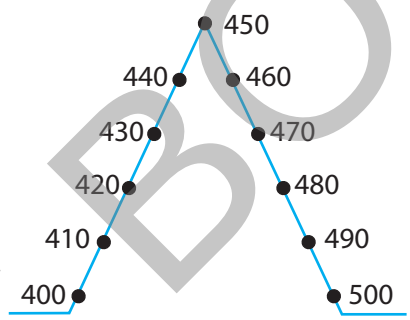
The sum of 5 consecutive even numbers is 4520. What are the numbers?

ACTIVITY

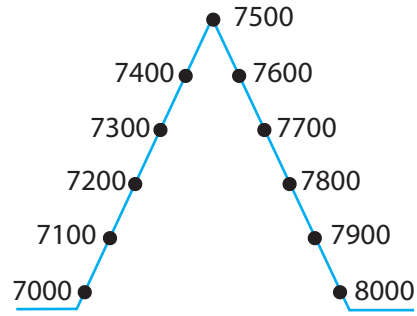
The teacher may ask each students to make post card hills (Tens Hills, Hundreds Hills, Thousands Hills) using thick paper or cardboard as shown here:



Tens Hill



Hundreds Hill



Thousands Hill

Ask the students to put a coin at say 24. The coin will roll down to 20. It shows that 24 is rounded to the nearest ten to 20.

Similarly, a coin placed at 28 will roll down to 30 showing that 28 is rounded off to 30 when rounded off to the nearest ten.

Similar questions can be asked about the other two hills.

Chapter Test

Time: 30 minutes **M.M. 10**

Note: *Each question is of 2 marks.*

Space for rough work

1. What is the sum of 24396, 36509 and 4812?

   _____

   _____

2. Add and write the sum in words:

   512 + 3808 + 75694

   _____

   _____

3. A factory produced 53819 bulbs in January, 20808 in February and 39025 in March. How many bulbs did it produce in three months?

   _____ bulbs.

4. Frame a story for 5390 + 6528 = ?

   _____

   _____

5. Encircle the correct answer from the given options:

   (a) Which of the following numbers will not be rounded off to 2000 when rounded to the nearest thousands?

   (i) 2189 (ii) 1149

   (iii) 1990 (iv) 1500

   (b) In which of these situations, it is not wise to round off

   (i) The population of a village is 56321

   (ii) A factory produced 15201 motorcycles in January

   (iii) Anil has 5 fingers on his right hand

   (iv) The cost of a refrigerator is ₹ 31987

4 Subtraction

In standard III, we have learnt the subtraction of 3-digit and 4-digit numbers (without borrowing) and the subtraction of 3-digit numbers (with borrowing). In this chapter, we shall learn the subtraction of 5-digit numbers (without borrowing) and the subtraction of 4-digit or 5-digit numbers with borrowing or decomposing.

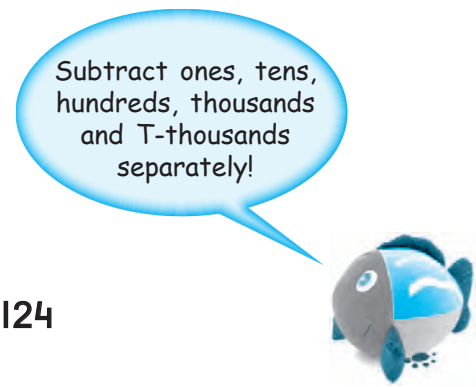
SUBTRACTION WITHOUT BORROWING

We know the method of subtraction of 4-digit numbers without borrowing (decomposing). The same method is applied when we subtract numbers of 5 digits.

Example 1. Subtract 25632 from 48756 and write the number sentence.

Solution. Putting the digits of the given numbers in columns and subtracting:

	T-Th	Th	H	T	O
	4	8	7	5	6
–	2	5	6	3	2
	2	3	1	2	4



Number sentence: **48756 – 25632 = 23124**

Note In a subtraction question, the number from which we subtract the other number is called **minuend**, the number which is subtracted is called **subtrahend** and the result which we get after subtraction is called **difference**. In the above example, 48756 is minuend, 25632 is subtrahend and 23124 is difference.

EXERCISE 4.1

Subtract:

1.

	T-Th	Th	H	T	O
	8	7	5	6	9
−	7	3	0	2	1

2.

	T-Th	Th	H	T	O
	9	9	9	9	9
−	7	7	8	3	5

3.

	T-Th	Th	H	T	O
	4	8	5	2	6
−	3	7	3	2	4

4.

	9	8	7	5	6
−	8	7	6	3	4

5.

	6	2	7	3	8
−	4	0	4	1	7

6.

	3	7	5	6	2
−	3	6	3	4	0

Write in column form and find the difference:

7. 38726 – 27305 **8.** 49389 – 37108 **9.** 57985 – 14281

10. 96865 – 42310 **11.** 88088 – 44044 **12.** 67328 – 35203

13. Find the difference when:

(a) subtrahend = 31146; minuend = 46287

(b) minuend = 86525; subtrahend = 43112

14. Fill in the blanks:

(a)

	8	7	6	5	3
−	□	□	1	3	0
	6	3	□	□	□

(b)

	4	5	8	6	5
−	□	0	□	2	□
	2	□	3	□	2

SUBTRACTION WITH BORROWING (DECOMPOSING)

We have learnt the subtraction of 3-digit numbers (with borrowing). Same rule will be applied for subtracting 4-digit and 5-digit numbers. Let us recall decomposing (borrowing):

1 ten = 10 ones
1 hundred = 10 tens
1 thousand = 10 hundreds
1 T-thousand = 10 thousands

Example 1. Decompose and fill in the blanks:

(a) 8 hundreds + 7 tens = 7 hundreds + ☐ tens

(b) 9 thousands + 3 tens = 8 thousands + ☐ hundreds + 12 tens + ☐ ones

Solution.

(a) 8 hundreds + 7 tens = 7 hundreds + 10 tens + 7 tens

= 7 hundreds + **17** tens

(b) 9 thousands + 3 tens = 8 thousands + 10 hundreds + 3 tens

= 8 thousands + 9 hundreds + 13 tens

= 8 thousands + **9** hundreds + 12 tens + **10** ones

Example 2. Subtract:

(a) 32 hundreds from 4 thousands.

(b) 6 thousands 7 hundreds from 9 thousands.

Solution.

(a) 4 thousands = 40 hundreds

− 32 hundreds = − 32 hundreds

8 hundreds

(b) 9 thousands − 6 thousands 7 hundreds

= 8 thousands 10 hundreds − 6 thousands 7 hundreds

= 2 thousands 3 hundreds

Example 3. Subtract 3678 from 8163.

Solution. Putting numbers in column form:

			O
		5	13
8	1	~~6~~	~~3~~
− 3	6	7	8
			5

Subtract **ones**.
8 > 3. Borrow 1 ten.
1 **ten** + 3 **ones** = 13 **ones**.
13 − 8 = 5 **ones**.

		T	O
		15	
	0	~~5~~	13
8	~~1~~	~~6~~	~~3~~
− 3	6	7	8
		8	5

Subtract **tens**.
7 > 5. Borrow 1 hundred.
1 **hundred** + 5 **tens** = 15 **tens**.
15 − 7 = 8 **tens**.

	H	T	O
	10	15	
7	~~0~~	~~5~~	13
~~8~~	~~1~~	~~6~~	~~3~~
– 3	6	7	8
	4	8	5

Subtract **hundreds**.
6 > 0. Borrow 1 thousand
1 **thousand** + 0 **hundreds** = 10 **hundreds**
10 – 6 = 4 **hundreds.**

	Th	H	T	O
		10	15	
	7	~~0~~	~~5~~	13
	~~8~~	~~1~~	~~6~~	~~3~~
–	3	6	7	8
	4	4	8	5

Subtract **thousands**.
7 – 3 = 4 **thousands**.

∴ **8163 – 3678 = 4485**

Example 4. Find the difference beween 9423 and 6734.

Solution. Write the greater of the two numbers on the top and then subtract the other number from it.

		13	11	
	8	~~3~~	~~1~~	13
	~~9~~	~~4~~	~~2~~	~~3~~
–	6	7	3	4
	2	6	8	9

	1	1	1	
	6	7	3	4
+	2	6	8	9
	9	4	2	3

Since addition and subtraction are related, you can add to check your answer.

Example 5. Subtract 67039 from 92403.

Solution. After writing the digits of the given numbers in columns and subtracting:

	T-Th	Th	H	T	O
				9	
	8	12	3	10	13
	~~9~~	~~2~~	~~4~~	~~0~~	~~3~~
–	6	7	0	3	9
	2	5	3	6	4

← After decomposing

EXERCISE 4.2

Subtract:

1. (a) 39 thousands from 47 thousands.
   (b) 49 tens from 5 hundreds.
   (c) 63 hundreds from 16 thousands.

(d) 14 hundreds 6 tens from 3 thousands.

(e) 3 thousands 15 hundreds from 12 thousands.

2. 8763 − 1420 = ____

3. 9758 − 4302 = ____

4. 6282 − 4134 = ____

5. 8763 − 6589 = ____

6. 7561 − 2845 = ____

7. 8542 − 4643 = ____

8. 9803 − 5346 = ____

9. 6432 − 1529 = ____

10. 8534 − 2983 = ____

11. 56812 − 27848 = ____

12. 97425 − 68792 = ____

13. 85842 − 48539 = ____

14. 76838 − 38949 = ____

15. 87405 − 58568 = ____

16. 90051 − 42369 = ____

17. 60304 − 49847 = ____

18. 56001 − 8396 = ____

Write in columns and subtract:

19. 8356 − 2439

20. 7106 − 4083

21. 9000 − 1234

22. 80034 − 4276

23. 83025 − 47938

24. 90100 − 56312

Find the difference between:

25. 9810 and 3725

26. 21367 and 76001

Fill in the blanks:

27.
$$\begin{array}{r} 6\ \square\ 2\ 3 \\ -\ 1\ 3\ \square\ 8 \\ \hline \square\ 1\ 6\ \square \end{array}$$

28.
$$\begin{array}{r} 8\ \square\ 5\ 0 \\ -\ 2\ 8\ \square\ 4 \\ \hline \square\ 7\ 1\ \square \end{array}$$

29.
$$\begin{array}{r} 9\ 4\ \square\ 3\ 2 \\ -\ \square\ \square\ 5\ \square\ 6 \\ \hline 6\ 6\ 3\ 6\ \square \end{array}$$

WORD PROBLEMS

Example 1. Mary made 8325 candles for Christmas festival. She sold 7830 candles and used the remaining candles to decorate her house on Christmas day. How many candles did she use? Write the solution sentence.

Solution.

Candles made = 8325

Candles sold = 7830

Remaining candles = 495

Solution sentence:

∴ She used 495 candles to decorate the house.

ADDITION AND SUBTRACTION

Example 2. Solve 5825 – 1376 + 524 – 2809.

Solution. Here some numbers have '+' sign or no sign (first number only) before them and there are some which have '–' sign before them.

	5	8	2	5
+		5	2	4
	6	3	4	9

Adding numbers with '+' sign or no sign before them.

	1	3	7	6
+	2	8	0	9
	4	1	8	5

Adding numbers with '–' sign before them.

	6	3	4	9
–	4	1	8	5
	2	1	6	4

Now subtract the second sum from the first sum.

∴ **5825 – 1376 + 524 – 2809 = 2164.**

Note If there is no sign before the first number, its sign is always taken as plus.

Example 3. A factory produced 12306 and 20825 scooter parts in two months. It was noticed that 8729 parts were defective. How many parts were not defective?

Solution.

Parts produced in 1st month = 12306

Parts produced in 2nd month = + 20825

Total parts produced = 33131

Total parts produced	=	3 3 1 3 1
Defective parts	= –	8 7 2 9
Parts not defective	=	2 4 4 0 2

Just subtract

EXERCISE 4.3

1. Rahul had ₹ 8515 in his bank account. If he withdrew ₹ 3980 for buying a carpet, how much money was left in his account?
2. Anuj is a good cricket player. He requires 185 more runs to score a total of 5000 runs. How many runs has he scored so far? Write the number sentence.
3. There are 2520 seats in a cinema hall. One day 1945 persons saw the movie. How many seats remained vacant?
4. There are 5125 students in a school. If the number of boys is 3809, find the number of girls. Write the solution sentence.
5. The sum of two numbers is 48275. If one of them is 39838, find the other.
6. Seema added 11780 to a number. She got the sum as 18035. What was the number she started with?
7. A factory produced 13285 T.V. sets in April and 20302 T.V. sets in May. Find the increase in the number of T.V. sets.
8. 43742 persons came to see a football match on Sunday. 27936 persons came on Monday. How many more persons visited on Sunday? Write the number sentence.
9. Deepika bought a motorcycle for ₹ 40000 and a scooter for ₹ 28560. How much did she pay more for the motorcycle?

Solve the following:

10. 4523 – 2312 + 684
11. 48769 – 12857 – 3172
12. Rohit collected 20815 stamps. 936 were from U.S.A. and 18390 from India. How many are from other countries?
13. A shopkeeper has 27040 oranges. He sold 12285 on Monday and 9806 on Tuesday. How many oranges does he have now?
14. From 83025 m long wire, two pieces measuring 38239 m and 23728 m were cut off. Find the length of the remaining wire.
15. The population of a town is 82010. If 43413 are men, 25929 are women and the remaining are children, find the number of children.

ESTIMATING THE DIFFERENCE

We have learnt estimation in addition. Applying the same rule, we estimate the difference:

Example 1. Find the actual and estimated difference of 32212 and 17906 by rounding off to the nearest thousands and compare.

Solution.

Actual					Estimated				
3	2	2	1	2	3	2	0	0	0
– 1	7	9	0	6	– 1	8	0	0	0
1	4	3	0	6	1	4	0	0	0

The estimated difference 14000 is very near to the actual difference 14306.

Example 2. A fruit-seller has 38210 bananas. Out of these he sold 21799 bananas. Estimate the unsold bananas.

Solution. Estimating to ten thousands

Total bananas	=	40000
Bananas sold out	=	20000
Bananas unsold	=	20000

Framing Word Problems (Story Writing)

As in case of framing word problems on addition, we can form different word problems for each number sentence. For example:

For the number sentence 48915 – 36100 = ?

Some of the word problems are:

(a) A fruit-seller has 48915 fruits in his shop. If 36100 are only bananas, how many are other fruits?

(b) A carpenter has 48915 nails. He used 36100 nails in making some desks. How many nails are left?

(c) The population of a village is 48915. If the number of males is 36100, estimate the number of females.

EXERCISE 4.4

1. Find the actual and estimated difference by rounding off to the nearest thousands:

(a)	Actual	Estimated	(b)	Actual	Estimated
	5819			16190	
	− 3295			− 2979	

2. Find the actual and estimated difference by rounding off to the nearest ten-thousands:

(a)	Actual	Estimated	(b)	Actual	Estimated
	39506			73012	
	− 22918			− 28790	

3. Mona bought a computer for ₹ 25392 and a laptop for ₹ 30915. Estimate, how much did she pay more for laptop?
4. A bakery shop has an order to supply 6705 packets of biscuit. There are only 4920 packets in the shop. Estimate the number of packets, needed to complete the supply.
5. Write a word problem (a story) for each of the following:
   (a) 86510 − 79842 = ? (b) 10000 − 8975 = ?

ACTIVITY

The teacher may prepare some grids like the one shown here and ask the students the questions related to them like:

1. Write all pairs of numbers whose sum is 100.
2. Write all pairs of numbers whose difference is 18.
3. Write all numbers which round off to 100.
4. Write all pairs of numbers in which one number is twice the other.

23	61	32	21
82	42	18	34
16	50	75	39
35	40	69	25

Chapter Test

Time: 30 minutes **M.M. 10**

Note: *Each question is of 2 marks.*

Space for rough work

1. Write in columns and find the difference of 25309 and 40216.

Difference: _____

2. Fill in the placeholders:

(a)

	6	4	☐	5	2
–	3	☐	2	9	☐
	☐	4	7	☐	4

3. The population of a village is 58304. If the number of males is 30825, how many are females?

_____ females.

4. Write a story for the sentence 1510 – 825 = ?

_____

_____

5. Encircle the correct answer from the given options:

(a) The estimated difference of 3209 and 1893, when rounded off to thousands, is

(i) 1000 (ii) 2000

(iii) 1300 (iv) 1200

(b) The wrong story for 2599 – 1807 = ? is

(i) What is the difference between 2599 and 1807?

(ii) The difference between 2599 and 1807 is 792.

(iii) In a gathering of 2599 persons, 1807 are females. How many are males?

(iv) There are 2599 students in a school. One day, only 1807 were present. How many were absent?

Model Paper-1 (Chapters 1–4)

Time: 1 hour **M.M. 20**

Note: *Questions* (1–4) *are of 1 mark each, questions* (5–7) *are of 2 marks each, questions* (8–9) *are of 3 marks each and question* 10 *is of 4 marks.*

Encircle the correct answer from the given alternative answers (1–4):

1. Write the number "Seventeen thousand five hundred nine" in figures:
   (a) 170509 (b) 17509 (c) 17059 (d) 17590
2. Write the Roman numeral for 24.
   (a) IXXV (b) XXVI (c) XXIV (d) XVIX
3. Round off 28359 to the nearest thousands.
   (a) 30000 (b) 28400 (c) 29000 (d) 28000
4. Fill in the blanks to make a correct statement: 27509 ..... 26215 + 1314
   (a) > (b) < (c) = (d) +
5. Write the greatest number of 5 digits using 2, 5, 0, 9, 4. _____
6. Round off to the nearest thousands and find the sum of 25318 and 12920.
   Sum = _____
7. Write a suitable story for the following statement:
   28309 – 27625 = ?
   _____
8. Arrange in descending order:
   28215, 28905, 1732, 1765 and 40001
   _____
9. Write in columns and add. Write the sum in words:
   42025, 18902 and 315.
   _____
10. A fruit-seller bought 30174 fruits. He sold 16209, 825 and 12397 in 3 days. How many fruits are left unsold?
    _____