

# Maths World

Class 4



**Punjab School Education Board**  
Sahibzada Ajit Singh Nagar

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## FOREWORD

The Punjab School Education Board has been continuously engaged in developing syllabi, producing and renewing text books according to the changing educational needs at the state and national level.

This book has been developed in accordance to the guidelines of National Curriculum Framework (NCF) 2005 and PCF 2013, after careful deliberations in workshops involving experienced teachers and experts from the board and field as well. All efforts have been made to make this book interesting with the help of activities and coloured figures. This book has been prepared with the joint efforts of subject experts of Board, SCERT and experienced teachers/experts of mathematics. Board is thankful to all of them.

The authors have tried their best to ensure that the treatment, presentation and style of the book in hand are in accordance with the mental level of the students of class-IV. The topics, contents and examples in the book have been framed in accordance with the situations existing in the young learner's environment. A number of activities have been suggested in every lesson. These may be modified, keeping in view the availability of local resources and real life situations of the learners.

I hope the students will find this book very useful and interesting. The Board will be grateful for suggestions from the field for further improvement of the book.

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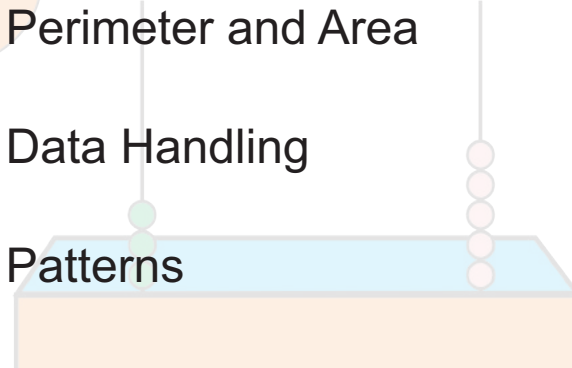

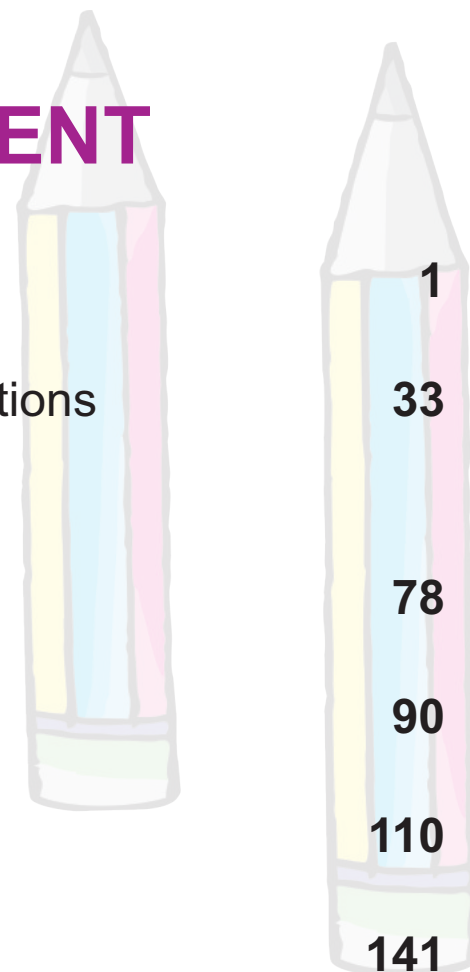
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# NUMBERS

## OBJECTIVES :- To enable the students :

1. To read, write and understand numbers up to 10000.
2. To know the routine activities of life like transactions, distribution, banking buying -selling etc.
3. To find place value and face value of numbers upto 10000.
4. To know predecessor, successor, ascending order, descending order of the given numbers.
5. To make smallest and largest numbers of five digits with the help of different digits.
6. To know about Hindu Arabic as well as Roman numerals.

Before proceeding to achieve the above mentioned objectives, we will test the previous knowledge of the student and know about the objectives achieved in the previous class.



## 1.1 Previous Knowledge Testing

In earlier classes we had taught the students to read and write numbers up to 1000. For transactions in daily life, we use numbers. Before making them understand new concepts, the teacher will revise the previous class work through discussion and activities.

**Teacher** : Which is the first month of the year?

**Student** : January, sir



**Teacher** : (To Prabhjot) How many days are there in this month?

**Prabhjot** : 31 days

**Teacher** : Write this number on the blackboard and read it aloud.

*Prabhjot writes 31 on black board and speaks 'THIRTY ONE'.*

**Teacher** : (To Navneet) How many days are there in a year?

**Navneet** : There are 365 (THREE HUNDRED & SIXTY FIVE) days in a year.

**Teacher** : Good

*Teacher would ask them to write 365 on blackboard and read aloud.*

*(students read & write this number.)*

**Teacher** : Harmanpreet kaur scored 127 runs in a cricket match. Who will write this number in expanded form and tell place value of the digits?

**Aman** : Sir , I can read this number and also tell the place value of the digits.

*(Aman writes on blackboard)*

**Hundreds**

1

**Tens**

2

**Ones**

7

$$1 \times 100 + 2 \times 100 + 7 \times 1$$

$$100 + 20 + 7 = 127$$

**Teacher** : Now all the students will solve the following sums in their note book.

**1. Write in words :**

(a) 598

(b) 608

(c) 328

(d) 999

**2. Write in numbers (Hindu-Arabic) :**

(a) two hundred seventy eight

(b) seven hundred ten

(c) four hundred six

(d) eight hundred forty six

**3. Write the expanded forms of the numbers given below :**

(a) 298

(b) 183

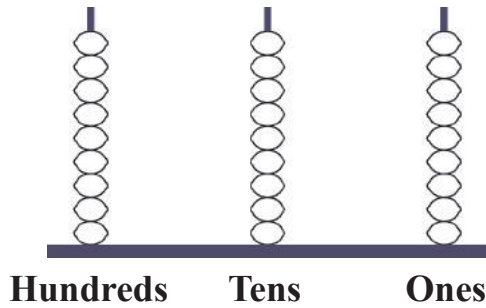
(c) 709

(d) 840

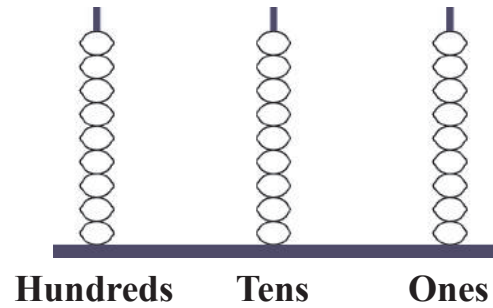


4. Colour the following numbers on Abacus :

(a) 803



(b) 999



5. Form all the numbers that can be made by using following digits :

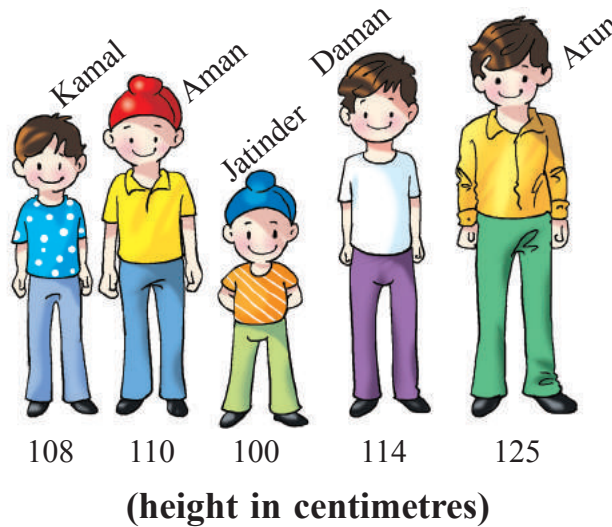
(a) 2, 5, 4

(b) 5, 3, 2

(c) 3, 1, 9

(d) 4, 0, 8

Activity for the revision of the smallest number, largest number, ascending order and descending order :



Teacher would measure the height of five students in class, write on the blackboard. He would ask the following questions to complete the activity.

**Teacher** : (To Sandeep) Who is the shortest among them and what is his height ?

**Sandeep** : Jatinder, 100 cms

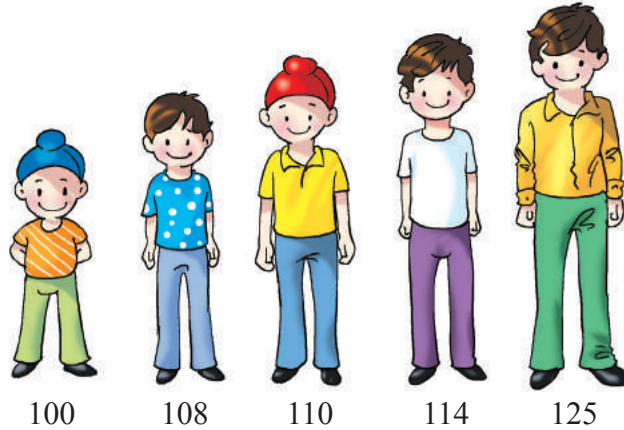
**Teacher** : (To Deepu) Who is the tallest among them and what is his height?

**Hint For Teacher** - Teacher will distribute the number cards to the children and ask them to interchange their positions with other students time and again and then complete the activity by using different cards.

**Deepu** : Arun, 125 cms

**Teacher** : (To Swarn) Can you help them to stand in ascending order as per their height ?

*Swarn makes them stand in an ascending order as per their height.*



(height in centimetres)

**Teacher** : Good, now they all are standing according to their heights and their height is in increasing order. From Jatinder to Arun they are standing in ascending order and from Arun to Jatinder they are standing in descending order. Among them Jatinder is the shortest and Arun is the tallest.

**6. Understand and fill in the blanks :**

- |             |                                  |          |                                  |     |           |     |                                  |     |
|-------------|----------------------------------|----------|----------------------------------|-----|-----------|-----|----------------------------------|-----|
| (i) (a) 761 | <input type="text" value="762"/> | (ii) (a) | <input type="text" value="863"/> | 864 | (iii) (a) | 863 | <input type="text" value="864"/> | 865 |
| (b) 400     | <input type="text"/>             | (b)      | <input type="text"/>             | 112 | (b)       | 680 | <input type="text"/>             | 865 |
| (c) 678     | <input type="text"/>             | (c)      | <input type="text"/>             | 456 | (c)       | 996 | <input type="text"/>             | 998 |
| (d) 962     | <input type="text"/>             | (d)      | <input type="text"/>             | 562 | (d)       | 514 | <input type="text"/>             | 516 |
| (e) 348     | <input type="text"/>             | (e)      | <input type="text"/>             | 715 | (e)       | 788 | <input type="text"/>             | 790 |
| (f) 824     | <input type="text"/>             | (f)      | <input type="text"/>             | 950 | (f)       | 200 | <input type="text"/>             | 202 |

**7. Put signs in the blanks >, <, = :**

- |         |                                   |     |         |                      |     |
|---------|-----------------------------------|-----|---------|----------------------|-----|
| (a) 761 | <input type="text" value="&gt;"/> | 671 | (f) 134 | <input type="text"/> | 431 |
| (b) 137 | <input type="text"/>              | 106 | (g) 768 | <input type="text"/> | 876 |



- (c) 115  162      (h) 617  617  
(d) 492  492      (i) 146  416  
(e) 987  989      (j) 768  98

Now try to solve the following sums :

**8. Write the largest number from the following numbers :**

- (a) 96, 279, 961, 899, 99      (b) 163, 894, 534, 106, 119  
(c) 764, 895, 564, 381, 678      (d) 161, 37, 153, 275, 891  
(e) 800, 190, 700, 861, 199      (f) 221, 448, 868, 88, 992

**9. Write the smallest number from the following numbers :**

- (a) 99, 638, 125, 369, 581      (b) 163, 894, 534, 106, 119  
(c) 764, 895, 564, 381, 678      (d) 161, 37, 153, 275, 891  
(e) 800, 190, 700, 861, 199      (f) 221, 448, 686, 88, 992

**10. Arrange the following numbers in ascending order :**

- (a) 269, 781, 683, 453, 239      (b) 196, 638, 700, 699, 824  
(c) 910, 800, 816, 72, 16      (d) 361, 482, 469, 756, 29  
(e) 235, 568, 567, 245, 961

**11. Arrange the following numbers in descending order :**

- (a) 619, 564, 72, 12, 169      (b) 781, 890, 967, 961, 119  
(c) 543, 650, 790, 798, 260      (d) 806, 818, 76, 82, 9  
(e) 582, 254, 184, 784, 591

**12. Understand and fill in the blanks :**

- (a) 11, 22, 33, 44, 55, 66, 77, 88  
(b) 10, 20, 30, 40, ....., ....., ....., .....  
(c) 44, 48, 52, 56, ....., ....., ....., .....  
(d) 52, 54, 56, 58, ....., ....., ....., .....  
(e) 81, 83, 85, 87, ....., ....., ....., .....



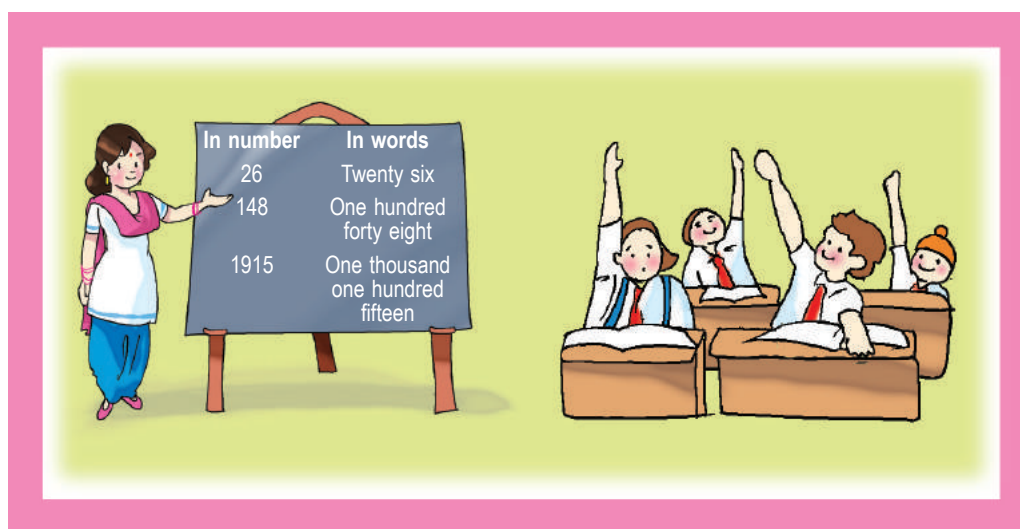


## 1.2 Reading and Writing of Numbers

In earlier classes we had learnt to read and write the small numbers In this class we will study how to read and write larger numbers.

Let us start :

**(Conversation between teacher and students)**



Teacher : What is your house number? Write it on black board and read it.

Sandeep : Mam, our house number is 26 (twenty six).

Charan : Mam, our house number is 148 (one hundred forty eight).

Teacher : Do you have a scooter or motor cycle at home ? If yes, tell its number.

Paras : We have motor cycle at home and its number is 1915 but I can't read this number

Teacher : Can any one else read this number?

Students : No, Mam

Teacher : In earlier classes you had studied numbers only up to 1000 that is why you couldn't read this number. Today we shall learn how to read and write numbers greater than 1000.

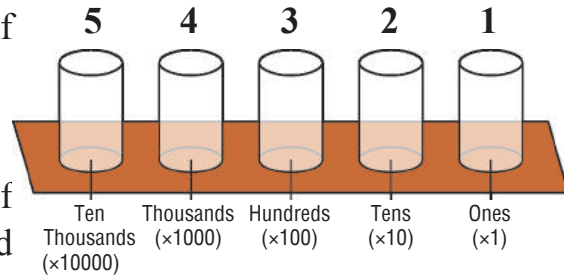


## Activity

**Teacher** : What is the name of glass no. 1.

**Raminder** : Ones

**Teacher** : What is the name of glass no. 2, 3, 4 and 5.



**Honey** : Tens, Hundreds, Thousands and Ten thousands.

**Teacher** : (To Rajinder) What are the last 3 digits of your mobile number?

**Raminder** : 4 7 3

**Teacher** : If you have to put marbles according to this number in the glass then how many marbles will you put in glass 1?

**Rajinder** : 3 marbles.

**Teacher** : (To Yashika) How many marbles will you put in glass 2?

**Yashika** : 7 marbles.

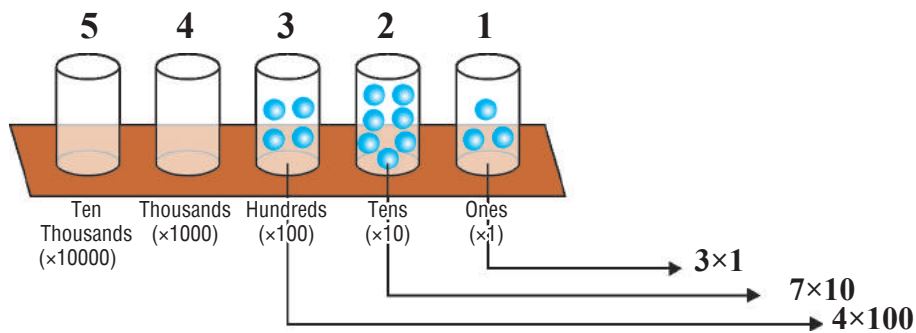
**Teacher** : (To Gurfateh) How many marbles you put in glass 3?

**Gurfateh** : 4 marbles.

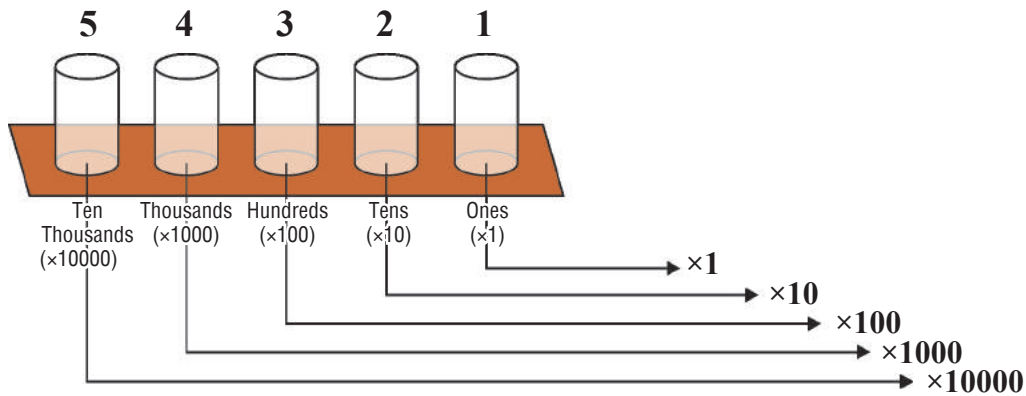
**Teacher explains** :

|             |                      |
|-------------|----------------------|
| Glass no. 1 | $3 \times 1 = 3$     |
| Glass no. 2 | $7 \times 10 = 70$   |
| Glass no. 3 | $4 \times 100 = 400$ |
|             | + 473                |

Four hundred seventy three



**Teacher** : Today we will discuss about unit of thousands. In figure, glass number 4 shows place value of thousand and this is represented by 1000.



**Teacher** : (To Harshita) Write down the last 4 digits of your father's phone number in your note book.

*Harshita writes 3 2 5 6*

**Teacher** : Now we will put marbles in glasses according to these digits. How many marbles will you put in glass 1?

**Harman** : 6 marbles

**Teacher** : (To Yashika) How many marbles will you put in glass 2?

**Yashika** : 5 marbles

**Teacher** : (To Harshita) How many marbles will you put in glass 3?

**Harshita** : 2 marbles

**Teacher** : (To Kamal) How many marbles will you put in glass 4?

**Kamal** : 3 marbles

**Teacher Explains** :

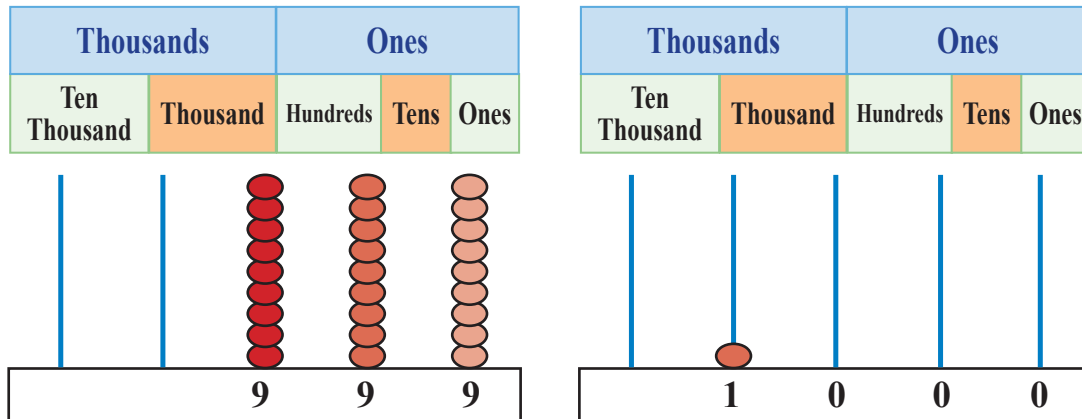
|             |                 |   |         |
|-------------|-----------------|---|---------|
| Glass no. 1 | $3 \times 1000$ | = | 3000    |
| Glass no. 2 | $2 \times 100$  | = | 200     |
| Glass no. 3 | $5 \times 10$   | = | 50      |
| Glass no. 4 | $6 \times 1$    | = | 6       |
|             |                 |   | + 3,256 |

Three thousand two hundred fifty six



## Activity

In the last class, number 999 was shown on Abacus. Now ask the students to add one more bead in abacus and see what they do. Note their response.



The teacher will try to arouse curiosity in the students to know about the next natural numbers.

|    |    |     |      |
|----|----|-----|------|
| 9  | 99 | 999 | 9999 |
| +1 | +1 | +1  | +1   |
| 10 | □  | □   | □    |

- |                         |         |
|-------------------------|---------|
| Smallest 1 digit number | = ..... |
| Smallest 2 digit number | = ..... |
| Smallest 3 digit number | = ..... |
| Smallest 4 digit number | = ..... |
| Smallest 5 digit number | = ..... |

- |                        |         |
|------------------------|---------|
| Largest 1 digit number | = ..... |
| Largest 2 digit number | = ..... |
| Largest 3 digit number | = ..... |
| Largest 4 digit number | = ..... |

Similarly we can write the numbers in the following way also :





|             |              |             |             |
|-------------|--------------|-------------|-------------|
| 999+1=1000  | 2999+1=3000  | 4999+1=5000 | 6999+1=7000 |
| 8999+1=9000 | 1999+1=2000  | 3999+1=4000 | 5999+1=6000 |
| 7999+1=8000 | 9999+1=10000 |             |             |







Similarly the students will be taught to read the larger numbers with the help of currency notes.

**Example 1 :** With the help of currency notes, try to make Rs. 1121 and Rs. 2314.

1121


+

+

+


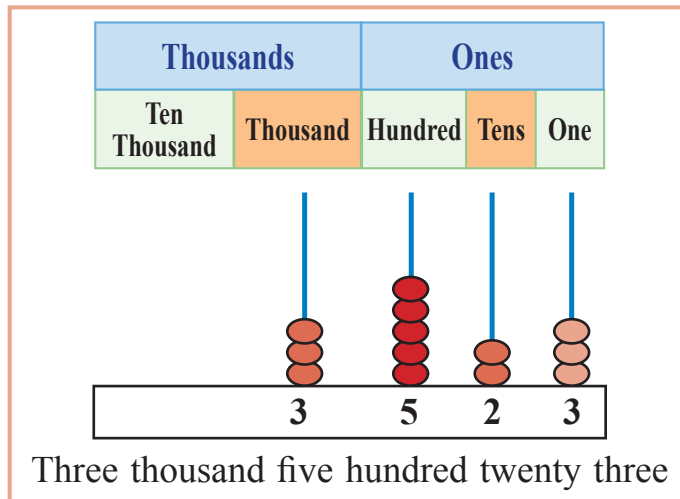
2314


+

+

+


Similarly the teacher will teach the students to write more numbers with the help of currency notes.

**Example 2 :** Show the number 3523 on Abacus.

**Solution :**



**For Teacher** - Teacher will tell the student that ₹1000 currency note is not valid in India.

**Example 3 :** Show 8685 on place value table

**Solution :**

| Thousands    |          | Ones     |      |      |
|--------------|----------|----------|------|------|
| Ten Thousand | Thousand | Hundreds | Tens | Ones |
|              | 8        | 6        | 8    | 5    |

**Example 4 :** Write these number 8456, 9780 in words.

**Solution :** 8456 — Eight thousand four hundred fifty six

9780 — Nine thousand seven hundred eighty

**Example 5 :** Write in numerals.

**Solution :** (i) Five thousand eight hundred fifty

| Thousands    |          | Ones     |      |      |
|--------------|----------|----------|------|------|
| Ten Thousand | Thousand | Hundreds | Tens | Ones |
|              | 5        | 8        | 5    | 0    |

(ii) Seven thousand nine

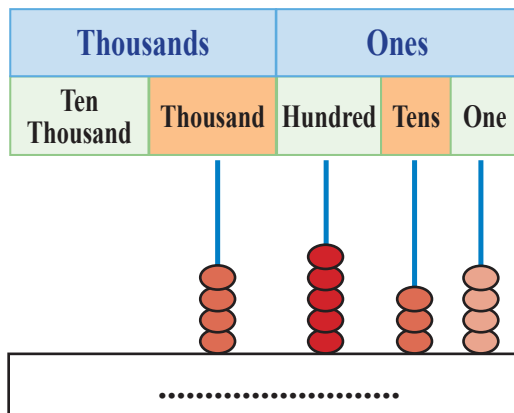
| Thousands    |          | Ones     |      |      |
|--------------|----------|----------|------|------|
| Ten Thousand | Thousand | Hundreds | Tens | Ones |
|              | 7        | 0        | 0    | 9    |

## Exercise 1.1

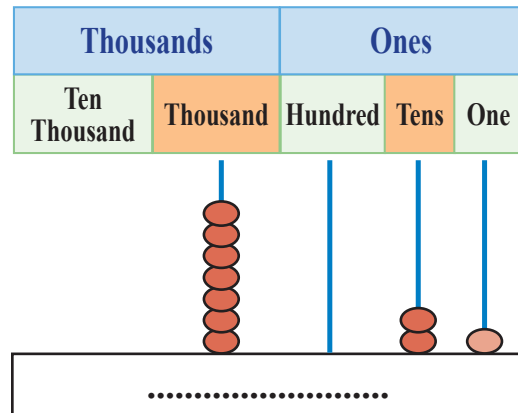
**Understand and Do :**

**1. Read and write the number with the help of Abacus :**

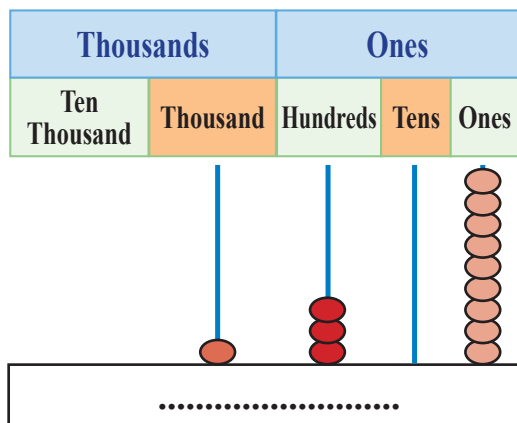
(a)



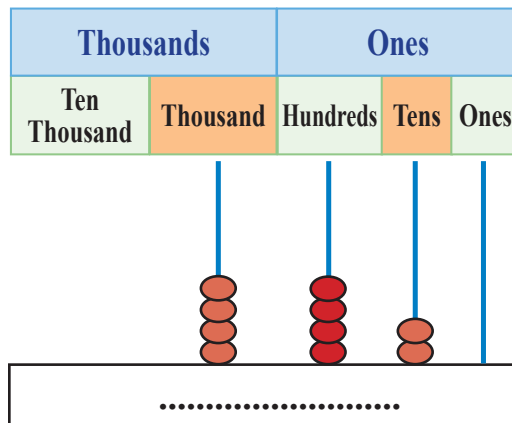
(b)



(c)



(d)



**2. Show the numbers on place value table :**

- |          |          |          |
|----------|----------|----------|
| (a) 868  | (c) 4123 | (e) 2003 |
| (b) 7605 | (d) 9856 | (f) 728  |

**3. Write in words :**

- |          |          |          |          |
|----------|----------|----------|----------|
| (a) 462  | (c) 9050 | (e) 2018 | (g) 6890 |
| (b) 8088 | (d) 3006 | (f) 5945 |          |

**4. Write in numerals :**

- seven hundred forty five
- three thousand eight hundred seventy five
- seven thousand seventy seven
- five thousand five
- nine thousand eight hundred
- eight thousand eighty
- one thousand nine hundred ninety nine

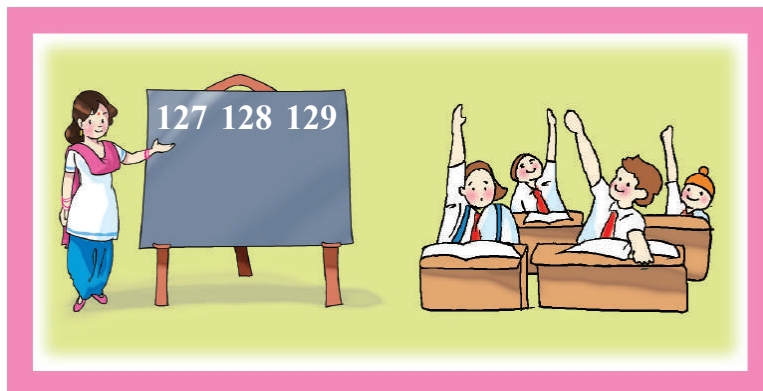
**1.3 Some more Activities related with Numbers**

In the last chapter we have learnt how to read and write the numbers in words and in numerals. Now we will learn to find the successor and the predecessor of numbers and also learn to find the number in between.





(Conversation between teacher and students)



**Teacher** : (To Mohinder) Open your maths book on page number 128.

**Mohinder** : Mam, I have opened page no. 128(one hundred twenty eight).

**Teacher** : Which is the next page to page no. 128?

**Mohinder** : Mam, it is 129 (one hundred twenty nine).

**Teacher** : Which page number comes before page no. 128?

**Mohinder** : Mam, 127 (one hundred twenty seven).

**Teacher** : (To Talwinder) If your house number is 1257(one thousand two hundred fifty seven) then which number comes next to your house number?

**Talwinder** : Mam it is 1258 (one thousand two hundred fifty eight).

**Teacher** : Children, If on one side of your house no. is 1999 (one thousand nine hundred nine) and on other side house no. is 2001 (two thousand one) then what would be your house number?

Some students will not be able to give answer. Then the teacher will announce that he will do some activities with numbers like straight counting, reverse counting, predecessor, successor, step counting and number in between.

**Example 1** : Write 5 consecutive successive numbers of 2128.

**Solution** : Five successive numbers of 2128 are :

2129, 2130, 2131, 2132, 2133

**Example 2** : Write 5 consecutive numbers that come before 1004.

**Solution** : Five consecutive numbers coming before 1004 are :

1003, 1002, 1001, 1000, 999



**Example 3 :** Write the predecessor and the successor of number 2200

**Solution :** Successor of 2200: = 2200

$$\begin{array}{r}
 + 1 \\
 \hline
 = 2201
 \end{array}$$

Predecessor of 2200 = 2200

$$\begin{array}{r}
 - 1 \\
 \hline
 = 2199
 \end{array}$$

**Exercise 1.2**

**1. Write five consecutive successive numbers of the numbers given below :**

- |          |          |          |
|----------|----------|----------|
| (a) 2128 | (c) 2832 | (e) 7998 |
| (b) 996  | (d) 5989 | (f) 4007 |

**2. Write five consecutive numbers coming before the numbers given below :**

- |          |          |          |
|----------|----------|----------|
| (a) 1004 | (c) 9183 | (e) 8303 |
| (b) 624  | (d) 7026 | (f) 6485 |

**3. Fill in the blanks :**

- |            |        |       |
|------------|--------|-------|
| (a) ....., | 2200,  | ..... |
| (b) ....., | 7853,  | ..... |
| (c) ....., | 1319,  | ..... |
| (d) 2589,  | ....., | 2591  |
| (e) ....., | 2401,  | ..... |
| (f) 7999,  | ....., | 8001  |

**4. Understand and do :**

- |                       |        |        |        |       |
|-----------------------|--------|--------|--------|-------|
| (a) 723, 733, 743,    | ....., | ....., | ....., | ..... |
| (b) 1510, 1520, 1530, | ....., | ....., | ....., | ..... |
| (c) 2545, 2560, 2575, | ....., | ....., | ....., | ..... |
| (d) 4690, 4670, 4650, | ....., | ....., | ....., | ..... |
| (e) 8150, 8200, 8250, | ....., | ....., | ....., | ..... |



- (f) 6325, 6425, 6525, ....., ....., ....., .....
- (g) 3008, 3018, 3028, ....., ....., ....., .....
- (h) 9000, 8000, 7000, ....., ....., ....., .....

**5. Write the successor of the given numbers :**

- (a) 999                      (c) 2018                      (e) 4678                      (g) 7909
- (b) 7000                      (d) 2899                      (f) 4000                      (h) 5629

**6. Write the predecessor of the given numbers :**

- (a) 9878                      (c) 4856                      (e) 3999                      (g) 5000
- (b) 5555                      (d) 7890                      (f) 2018                      (h) 6910

**1.4 Place value and Face value**

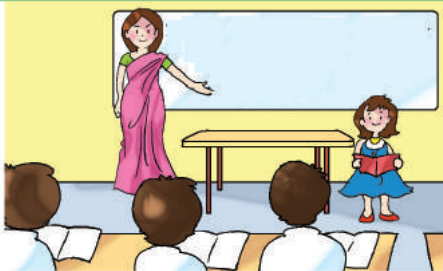
We have learnt a lot about numbers. Now we will learn the important part, place value and face value. Let us try to understand this concept with the help of an example:



She is Priya and her mother is Renu.

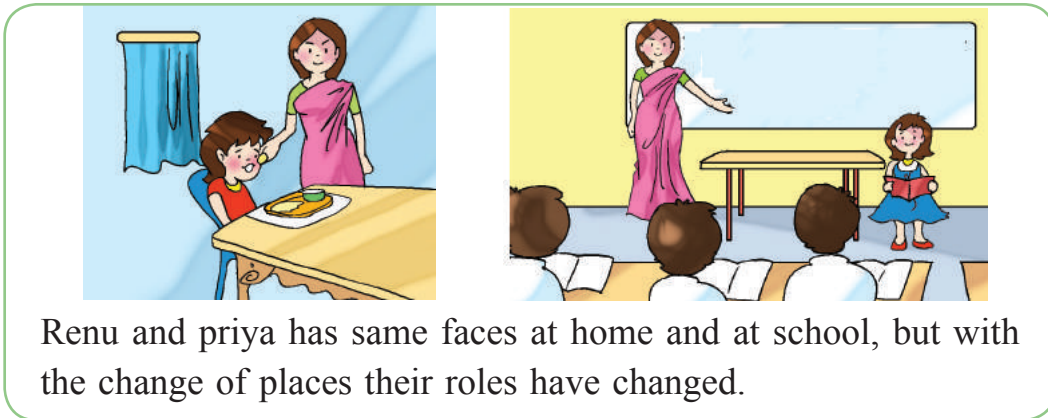


Renu is feeding her daughter Priya at home.



Renu is teaching her daughter Priya, as a teacher.





Renu and priya has same faces at home and at school, but with the change of places their roles have changed.

In above pictures Renu and Priya are mother and daughter at home but at school they are teacher and student. With the change of place their roles have also changed, their faces are the same. Similarly if the digits are interchanged, their place values are also changed whereas their face value remain the same.

### Activity

23

picture A

32

picture B

In the above picture when the digits interchange their position, their place values also get changed.

For example In picture A, digit 2 is on tens place and digit 3 is on ones place.

2 tens and 3 ones.

$$(2 \times 10) + (3 \times 1) = 20 + 3 = 23$$

In picture B, when the digits interchange their position then their place values are also changed.

3 tens and 2 ones.

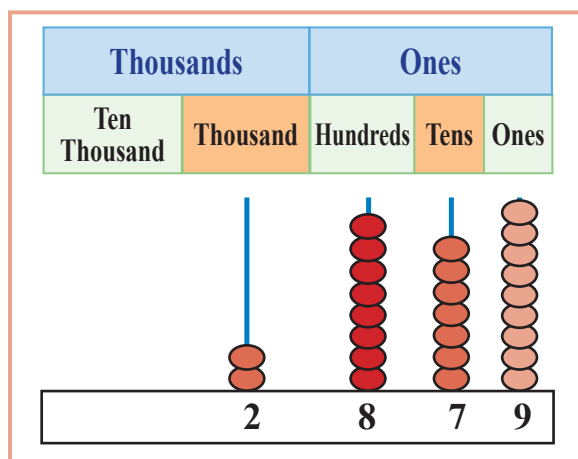
$$(3 \times 10) + (2 \times 1) = 30 + 2 = 32$$

From the above activity we have learnt that if the digits of a number are interchanged then their place values also get changed accordingly but their face values remain same.



### 1.4.1 Write Place value and Face value of Numbers

**Example 1 :** Write place value and face value of every digit of the number 2879



- In the above abacus, 9 is on ones place, so the place value of 9 is  $9 \times 1 = 9$  and the face value of 9 is 9.
- In above abacus, 7 is on tens place, so the place value of 7 is  $7 \times 10 = 70$  and the face value of 7 is 7.
- In above abacus, 8 is on hundreds place, so the place value of 8 is  $8 \times 100 = 800$  and the face value of 8 is 8.
- In above abacus, 2 is on thousands place, so the place value of 2 is  $2 \times 1000 = 2000$  and the face value of 2 is 2.

**Example 2 :** Find the place value and the face value of every digit of the number 5627

**Solution :** In above abacus, 7 is on ones place, so the place value of 7 is  $7 \times 1 = 7$  and the face value of 7 is 7.

In above abacus, 2 is on tens place, so the place value of 2 is  $2 \times 10 = 20$  and the face value of 2 is 2.

In above abacus, 6 is on hundreds place, so the place value of 6 is  $6 \times 100 = 600$  and the face value of 6 is 6.

In above abacus, 5 is on thousands place, so the place value of 5 is  $5 \times 1000 = 5000$  and the face value of 5 is 5.

In any number the place value of digit '0' always remains '0', irrespective of its position



**Example3 :** Write the place value of every digit of the number 6879.

**Solution :** Place value of 9 is  $9 \times 1 = 9$

Place value of 7 is  $7 \times 10 = 70$

Place value of 8 is  $8 \times 100 = 800$

Place value of 6 is  $6 \times 1000 = 6000$

**Example4 :** Write place value of every digit of the number 5020.

**Solution :** Place value of 0 is  $0 \times 1 = 0$

Place value of 2 is  $2 \times 10 = 20$

Place value of 0 is  $0 \times 100 = 0$

Place value of 5 is  $5 \times 1000 = 5000$

### 1.5 Expanded Notation of Numbers

To write a number in expanded form, the place value of each digit in the number is calculated then the number is expressed as... by putting + sign between each place values.

**Example 1 :** Write the expanded form of 2356.

**Solution :** Expanded form of 2356 is....

| Thousands    |          | Ones     |      |                        |
|--------------|----------|----------|------|------------------------|
| Ten Thousand | Thousand | Hundreds | Tens | Ones                   |
|              | 2        | 3        | 5    | 6                      |
|              |          |          |      |                        |
|              | └───┘    | └──┘     | └─┘  | └─┘                    |
|              |          |          |      | $6 \times 1 = 6$       |
|              |          |          |      | $5 \times 10 = 50$     |
|              |          |          |      | $3 \times 100 = 300$   |
|              |          |          |      | $2 \times 1000 = 2000$ |

Expanded form of 2356 =  $2000 + 300 + 50 + 6$



**Example 2 :** Write the expanded form of 7083.

**Solution :** Expanded form of 7083 is....

|                 |          |          |      |      |
|-----------------|----------|----------|------|------|
| Thousands       |          | Ones     |      |      |
| Ten<br>Thousand | Thousand | Hundreds | Tens | Ones |
|                 | 7        | 0        | 8    | 3    |

$3 \times 1 = 3$   
 $8 \times 10 = 80$   
 $0 \times 100 = 0$   
 $7 \times 1000 = 7000$

Expanded form of 7083 = 7000 + 80 + 3

**Example 3 :** Write the expanded form of 8308.

**Solution :** Expanded form of 8308 = 8000 + 300 + 8

**Example 4 :** Write the numbers from the expanded form is given below.

- (a) 7000 + 800 + 90 + 6
- (b) 6000 + 60 + 8

**Solution :** (a) 7000 + 800 + 90 + 6 = 7896  
 (b) 6000 + 60 + 8 = 6068

### Exercise 1.3

**1. Write the place value of the underlined digits :**

- (a) 326
- (c) 8088
- (e) 4716
- (b) 5458
- (d) 9008
- (f) 6318

**2. Write the face value of the underlined digits :**

- (a) 4567
- (c) 6423
- (e) 8308
- (b) 3080
- (d) 5221

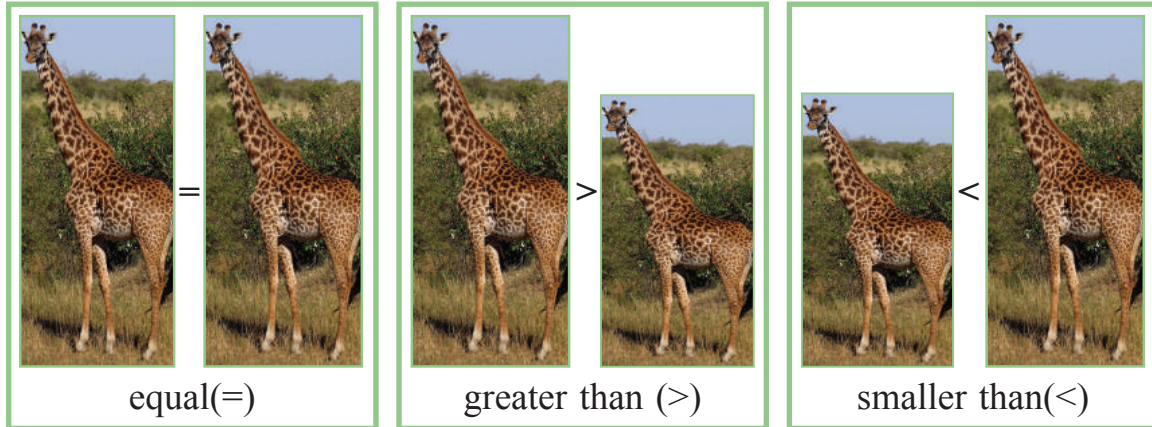


### 3. Write the following numbers in expanded form :

- (a) 2134                      (c) 9160                      (e) 5948  
 (b) 856                        (d) 7823                      (f) 6002

## 1.6 Comparison of Numbers

Now we have learnt how to write the numbers in their expanded notation with the help of their place values. Now we will study how to compare two or more than two numbers



As comparison has been shown in the above picture, similarly we can compare the numbers too. Rules of comparison are given below:

**Rule – 1.** A number having more number of digits is always greater than the number having lesser number of digits.

**Example :**       $82 < 123$   
                        $3198 > 365$   
                        $999 < 9999$

**Rule – 2.** If the two numbers have same number of digits, the numbers are compared with the help of place value of its digits. Therefore, the number having greater place value of the left most digit is greater of the two numbers. If the left most digit is the same in both the numbers then the digits on the immediate right to this digit are compared and so on.

**Example :**       $\underline{4}823 > \underline{3}783$   
                        $9\underline{3}28 < 9\underline{5}36$   
                        $80\underline{4}8 > 80\underline{3}8$   
                        $234\underline{5} < 234\underline{8}$



**Example 1 :** Write the greatest and the smallest number from the given number :

7814, 9036, 2940, 9345

**Solution :** Greatest number = 9345

Smallest number = 2940

**Example 2 :** Arrange the numbers in ascending order :

8387, 283, 5983, 6004

**Solution :**  $283 < 5983 < 6004 < 8387$

**Example 3 :** Arrange the numbers in descending order :

5555, 5500, 5005, 5050

**Solution :**  $5555 > 5500 > 5050 > 5005$

**Example 4 :** Write the greatest and the smallest 4 digit number by using the digits 2,3,5 and 7.

**Solution :** Greatest number = 7532

Smallest number = 2357

**Example 5 :** Write the greatest and the smallest 4 digit number by using the digits 1,0,4 and 6.

**Solution :** Greatest number = 6410

Smallest number = 1046

Having more digits is the greatest value.  
If digits are equal we compare place value.  
Just compare from left to right.  
The bigger first wins without fight.



## Exercise 1.4

1. Fill in the blanks with (> greater, < smaller, = equal) :

- |  |  |
|--|--|
| (a) 872 <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> 1872  | (b) 9876 <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> 6789 |
| (c) 2916 <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> 2961 | (d) 4234 <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> 4234 |
| (e) 3503 <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> 3350 | (f) 6004 <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> 6040 |
| (g) 5888 <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> 8885 | (h) 8751 <input style="width: 40px; height: 20px; border: 1px solid black;" type="text"/> 7851 |

2. Identify and write the greatest number from the numbers given below :

- |                            |                            |
|----------------------------|----------------------------|
| (a) 872, 278, 827, 728     | (b) 6060, 6006, 6600, 6660 |
| (c) 5831, 1358, 3185, 8135 | (d) 4743, 7434, 4473, 4437 |
| (e) 872, 3827, 5183, 3172  |                            |

3. Identify and write the smallest number from the numbers given below :

- |                            |                            |
|----------------------------|----------------------------|
| (a) 964, 772, 838, 946     | (b) 8118, 8108, 8810, 1818 |
| (c) 3234, 2343, 2334, 3342 | (d) 927, 3972, 9327, 4638  |
| (e) 4348, 4483, 4834, 3448 |                            |

4. Write the following numbers in ascending order :

- |                            |                            |
|----------------------------|----------------------------|
| (a) 906, 609, 960, 69      | (b) 3749, 9473, 4973, 6147 |
| (c) 6398, 3689, 4561, 6514 | (d) 3618, 7225, 2752, 3643 |
| (e) 2836, 8236, 4853, 5834 |                            |

5. Write the following numbers in descending order :

- |                            |                            |
|----------------------------|----------------------------|
| (a) 784, 884, 448, 874     | (b) 6172, 7162, 6721, 7612 |
| (c) 7228, 8272, 8722, 8227 | (d) 9063, 3083, 4835, 6093 |
| (e) 8326, 8623, 2836, 2863 |                            |

6. Write the greatest and the smallest 4 digit number by using the digits 5, 7, 3 and 8.

7. Write the greatest and the smallest 4 digit number by using the digits 2, 3, 0 and 9.

*The smallest digit is one,  
treat it like heroes.  
To write the smallest number,  
just put one and all zeros.  
The greatest digit is nine,  
which can explode like mines.  
To write greatest number  
just put all the nines.*

### 1.7 Introduction to Roman Numerals



Show a clock having roman numerals to the children. Ask the children to read these numerals which they will not be able to. then the teacher will introduce Roman numerals to them.

**In this system only 7 symbols are used to represent roman numerals :**

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

Roman numbers have 7 symbols , All are different  
Comes only three times , and can be used for all numerals  
V L D can't be repeated,  
they can be added only not subtracted  
I X C can be repeated thrice,  
add or subtract to change the price  
Add you greater, if you see on right,  
subtract if on the left of your sight  
Can be added 3 times to right,  
but subtracted only once if left to our sight

| 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            |                       |                |

### Remember

- Roman number system does not have any symbol for 0.
- If a symbol is repeated twice or thrice, the value of numerals is obtained by adding the value of the symbol as many times as it is repeated.

$$\text{III} = 3$$

$$\text{XXX} = 30$$

- Symbol V is never repeated in any numeral.
- If any symbol is written on the Right of the symbol having greater value, we add its value to the value of the symbol on its left.

$$\text{VI} = 5 + 1 = 6$$

$$\text{XI} = 10 + 1 = 11$$

$$\text{XV} = 10 + 5 = 15$$

**\*Note :** In this class teacher will teach only 3 symbols I ,V and X



- If a symbol is written on the left of a symbol with greater value, we subtract its value from the value of the symbol on its right.

$$IV = 5 - 1 = 4$$

$$IX = 10 - 1 = 9$$

- The numerals greater than 10 have the groups of tens.

$$12 = XII$$

$$22 = XXII$$

$$39 = XXXIX$$

**Example 1 :** Write Roman numerals for the Hindu-Arabic numerals :

|    |  |        |
|----|--|--------|
| 2  |  | II     |
| 17 |  | XVII   |
| 23 |  | XXIII  |
| 37 |  | XXXVII |

**Example 2 :** Write Hind-.Arabic Numerals for the Roman numerals :

|         |  |    |
|---------|--|----|
| III     |  | 3  |
| V       |  | 5  |
| XXI     |  | 21 |
| XXXVIII |  | 38 |

### Exercise 1.5

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

- (a) 9 ..... (b) 12 .....
- (c) 29 ..... (d) 35 .....
- (e) 39 .....

**2. Write Hindu-Arabic Numerals for the Roman numerals :**

- (a) VIII ..... (b) XV .....
- (c) IX ..... (d) XXIV .....
- (e) XXXVIII .....

## 3. Match the followings :

|    |   |        |
|----|---|--------|
| 5  | → | XXV    |
| 9  |   | V      |
| 18 |   | XXXIX  |
| 24 |   | XXXIII |
| 33 |   | IX     |
| 39 |   | XVIII  |

## 1.8 Rounding off numbers:

Two friends Gurmeet and Surjeet start eating fruits from the bag brought from homes during the class.



**Teacher** : (To Surjit) What have you brought?

**Surjit** : Mam, I am eating grapes.

**Teacher** : (To Gurmeet) What have you brought?

**Gurmeet** : Mam, I am also eating grapes.

**Teacher** : Now tell me the number of grapes you ate?

**Surjit** : Mam I can't tell the exact number of grapes I have eaten approximately 20 grapes.

**Teacher** : And Gurmeet you?

**Gurmeet** : Mam, I also ate approx.30

**Teacher** : Similarly in daily life too we often give the estimate of correct number, rate, weight and cost etc. As we need different resources to measure or to weight exactly, unavailability of these make us to estimate. This estimation is close to the correct value. Similarly, we can make estimate of the numbers. This estimation is called rounding off.

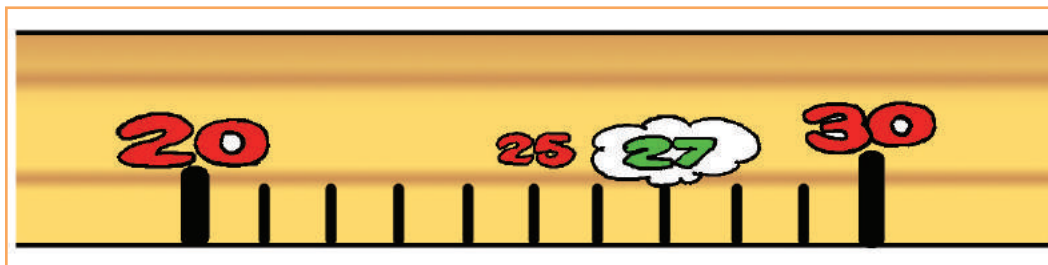




We can round off a number as follows :

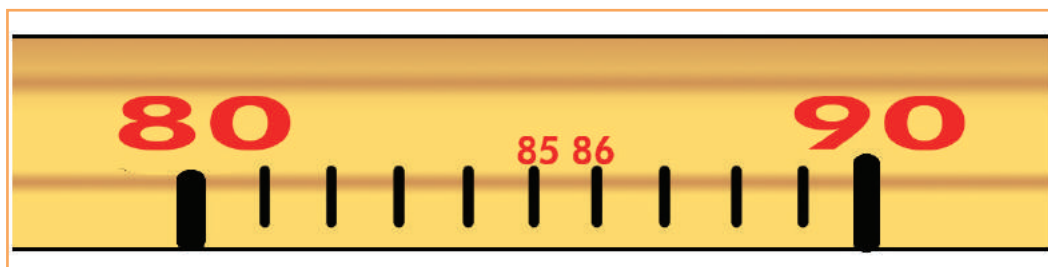
**Example 1 :** Round off 27 to nearest tens.

**Solution :** Number 27 is in-between 20 and 30. 27 is nearer to 30 than 20.  
So number 27 can be rounded off to 30.



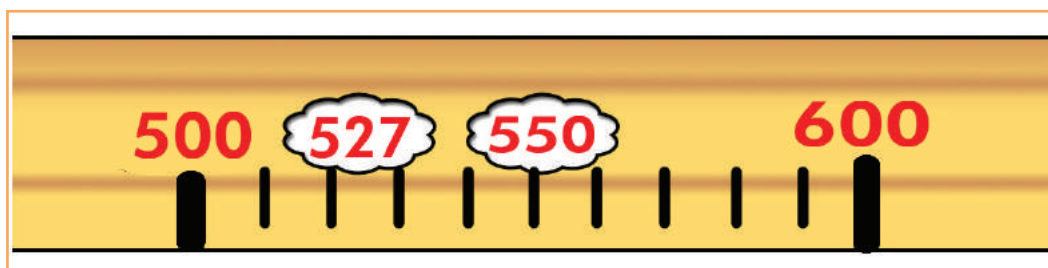
**Example 2 :** Round off 86 to nearest tens.

**Solution :** Number 86 lies between 80 and 90. 86 is nearer to 90 than 80.  
So number 86 can be rounded off to 90.



**Example 3 :** Round off 527 to nearest hundreds.

**Solution :** Number 527 lies between 500 and 600. 527 is nearer to 500 than 600.  
So number 527 can be rounded off to 500.



You want to round off ten, put right a zero  
see one's digit if one to five, add a unit to tens with arrow  
if you want to round off hundred, put right two zeros  
see ten's digit one to five, add a unit to hundred with arrows

## Exercise 1.6

### 1. Round off the numbers given below to the nearest tens :

- (a) 12                      (b) 35                      (c) 98  
(d) 185                      (e) 342                      (f) 847

### 2. Round off the numbers given below to the nearest hundreds :

- (a) 121                      (b) 249                      (c) 389  
(d) 210                      (e) 897                      (f) 850

### 3. Write true /false :

- (a) Round off 29 to nearest tens is 20.  
(b) Round off 870 to nearest hundreds is 900.  
(c) Round off 56 to nearest tens is 50.  
(d) Round off 789 to nearest tens is 780.  
(e) Round off 951 to nearest hundreds is 1000.



## Multiple Choice Questions (MCQ)

### 1. Which number comes before 2000 ?

- (a) 2001                      (b) 1999                      (c) 2002                      (d) 1001

### 2. Which number is 1 greater than 9999 ?

- (a) 9998                      (b) 10000                      (c) 8999                      (d) 1000

### 3. How do we write 39 in roman numerals ?

- (a) XXXV                      (b) IXXX                      (c) XXIX                      (d) XXXIX

### 4. What is the difference between 10000 and greatest 4 digit number ?

- (a) 2                      (b) 1                      (c) 10                      (d) 100

### 5. What should be added to 999 to get the smallest 4 digit number ?

- (a) 10                      (b) 1                      (c) 3                      (d) 4

### 6. Which is the smallest 4 digit number ?

- (a) 1000                      (b) 10000                      (c) 9000                      (d) 9999

### 7. Write the Place value of 8 in number 7986.

- (a) 8                      (b) 80                      (c) 800                      (d) 8000

8. Write the face value of 6 in 7691.

- (a) 600                      (b) 6                      (c) 60                      (d) 6000

9. Write largest 4 digits number by using digits 6, 7, 0 and 8.

- (a) 7608                      (b) 6708                      (c) 8706                      (d) 8760

10. Which of the following Roman numerals is written wrong?

- (a) XVI                      (b) XIV                      (c) VXI                      (d) XX

11. Which number among the following should be written as Nine Thousand Nine Hundred and Ninety Nine ?

- (a) 9099                      (b) 9909                      (c) 9999                      (d) 9090

12.  $4000 + 300 + 90 + 9 = ?$

- (a) 4039                      (b) 4399                      (c) 4990                      (d) 4390

13. Which is the largest 3 digits number ?

- (a) 100                      (b) 999                      (c) 888                      (d) 111

14. Which number comes between 9998 and 10000 ?

- (a) 9999                      (b) 9997                      (c) 8999                      (d) 9989

### Learning Outcomes

- Students are able to read, write and understand numbers upto 10000.
- They are able to perform routine activities of life like transactions, banking, buying -selling etc.
- They are able to find place value and face value and rounding off numbers.
- They are able to find predecessor, successor, ascending order, descending order.
- They are able to make smallest and largest numbers with the help of different digits.
- They are able to understand Hindu Arabic numerals as well as Roman numerals.
- They are prepared for competitive exams.



## Answer Key

### Revision

1. (a) five hundred ninety eight (b) six hundred eight  
(c) three hundred twenty eight (d) nine hundred ninety nine
2. (a) 278 (b) 710 (c) 406 (d) 886
3. (a)  $200+90+8$  (b)  $100+80+3$  (c)  $700+9$  (d)  $800+40$
4. Related to Abacus
5. (a) 542, 524, 452, 425, 254, 245 (b) 532, 523, 352, 325, 253, 235  
(c) 931, 913, 391, 319, 193, 139 (d) 840, 804, 480, 408
6. (i) (a) 762 (b) 401 (c) 679 (d) 963 (e) 349 (f) 825  
(ii) (a) 863 (b) 111 (c) 455 (d) 561 (e) 714 (f) 949  
(iii) (a) 388 (b) 681 (c) 997 (d) 515 (e) 789 (f) 201
7. (a)  $>$  (b)  $>$  (c)  $<$  (d)  $=$  (e)  $<$  (f)  $<$   
(g)  $<$  (h)  $=$  (i)  $<$  (j)  $>$
8. (a) 961 (b) 894 (c) 895 (d) 891 (e) 861 (f) 992
9. (a) 99 (b) 106 (c) 381 (d) 37 (e) 190 (f) 88
10. (a) 239, 269, 453, 683, 781 (b) 196, 638, 699, 700, 824  
(c) 16, 72, 800, 816, 910 (d) 29, 361, 469, 482, 756  
(e) 235, 245, 567, 568, 961
11. (a) 619, 564, 169, 72, 12 (b) 967, 961, 890, 781, 119  
(c) 798, 790, 650, 543, 260 (d) 818, 806, 82, 76, 9  
(e) 784, 591, 582, 254, 184
12. (a) 55, 66, 77, 88 (b) 50, 60, 70, 80 (c) 60, 64, 68, 72  
(d) 60, 62, 64, 66 (e) 89, 91, 93, 95

### Exercise 1.1

1. (a) 4534 (b) 6021 (c) 1309 (d) 4420
- 2.

| Ten Thousand | Thousand | Hundreds | Tens | Ones |
|--------------|----------|----------|------|------|
|              | 0        | 8        | 6    | 8    |
|              | 7        | 6        | 0    | 5    |
|              | 4        | 1        | 2    | 3    |
|              | 9        | 8        | 5    | 6    |
|              | 2        | 0        | 0    | 3    |
|              | 0        | 7        | 2    | 8    |

3. (a) four hundred sixty two (b) eight thousand eighty eight  
 (c) nine thousand fifty (d) three thousand six  
 (e) two hundred eighteen (f) five thousand nine hundred  
 (g) six thousand eight hundred ninety forty five
4. (a) 745 (b) 3875 (c) 7077 (d) 5005  
 (e) 9800 (f) 8080 (g) 1999

### Exercise 1.2

1. (a) 2129, 2130, 2131, 2132, 2133 (b) 997, 998, 999, 1000, 1001  
 (c) 2833, 2834, 2835, 2836, 2837 (d) 5990, 5991, 5992, 5993, 5994  
 (e) 7999, 8000, 8001, 8002, 8003 (f) 4008, 4009, 4010, 4011, 4012
2. (a) 1003, 1002, 1001, 1000, 999 (b) 623, 622, 621, 620, 619  
 (c) 9182, 9181, 9180, 9179, 9178 (d) 7025, 7024, 7023, 7022, 7021  
 (e) 8302, 8301, 8300, 8299, 8298 (f) 6484, 6483, 6482, 6481, 6480
3. (a) 2199, 2201 (b) 7852, 7854 (c) 1318, 1320 (d) 2590  
 (e) 2400, 2402 (f) 8000
4. (a) 743, 753, 763, 773 (b) 1530, 1540, 1550, 1560  
 (c) 2575, 2590, 2605, 2620 (d) 4650, 4630, 4610, 4590  
 (e) 8250, 8300, 8350, 8400 (f) 6525, 6625, 6725, 6825  
 (g) 3028, 3038, 3048, 3058 (h) 7000, 6000, 5000, 4000
5. (a) 1000 (b) 7001 (c) 2019 (d) 2900  
 (e) 4679 (f) 4001 (g) 7910 (h) 5630
6. (a) 9877 (b) 5554 (c) 4855 (d) 7889  
 (e) 3998 (f) 2017 (g) 4999 (h) 6909

### Exercise 1.3

1. (a) 20 (b) 400 (c) 0 (d) 8 (e) 700 (f) 6000
2. (a) 6 (b) 0 (c) 4 (d) 5 (e) 3
3. (a)  $2000 + 1000 + 30 + 4$  (b)  $800 + 50 + 6$   
 (c)  $9000 + 100 + 60$  (d)  $7000 + 800 + 20 + 3$   
 (e)  $5000 + 900 + 40 + 8$  (f)  $6000 + 2$



**Exercise 1.4**

1. (a) < (b) > (c) < (d) =  
(e) > (f) < (g) < (h) >
2. (a) 872 (b) 6660 (c) 8135 (d) 7434 (e) 5183
3. (a) 772 (b) 1818 (c) 2334 (d) 927 (e) 3448
4. (a) 69, 609, 906, 960 (b) 3749, 4973, 6147, 9473  
(c) 3689, 4561, 6398, 6514 (d) 2752, 3618, 3643, 7225  
(e) 2836, 4853, 5834, 8236
5. (a) 884, 874, 784, 448 (b) 7612, 7162, 6721, 6172  
(c) 8722, 8272, 8227, 7228 (d) 9063, 6093, 4835, 3083  
(e) 8623, 8326, 2863, 2836
6. 8753, 3578
7. 9320, 2039

**Exercise 1.5**

1. (a) IX (b) XII (c) XXIX (d) XXXV (e) XXXIX
2. (a) 8 (b) 15 (c) 9 (d) 24 (e) 38
3.  $5 = V$ ,  $9 = IX$ ,  $18 = XVIII$ ,  $24 = XXIV$ ,  $33 = XXXIII$ ,  $XXXIX = 39$

**Exercise 1.6**

1. (a) 10 (b) 40 (c) 100 (d) 190 (e) 340 (f) 850
2. (a) 100 (b) 200 (c) 400 (d) 200 (e) 900 (f) 900
3. (a) Wrong (b) Right (c) Wrong (d) Wrong (e) Right

**Multiple choice questions (MCQs)**

1. b    2. b    3. d    4. b    5. b    6. a    7. b
8. b    9. d    10. c    11. c    12. b    13. b    14. a





# FUNDAMENTAL OPERATIONS ON NUMBERS

## OBJECTIVES :

1. The students will be able to do addition, subtraction, multiplication and division of the numbers up to 10000.
2. The students will be able to perform day to day activities like banking, buying -selling etc., using basic operations on numbers.
3. The students will be able to choose alternatives solution of repeated addition and repeated subtraction.
4. Development of intellectual and mental level of students.

## 2.1 Activities related to addition and subtraction

In the previous class students have learnt addition, subtraction multiplication and division on two or more than two digits numbers. In this chapter, we will learn basic operations on larger numbers. Firstly, we will perform an activity then revise work done in the previous class.

### Activity

Students ! We will talk about banking today.

Have you ever visited any bank?

**Students** : Yes sir

**Teacher** : When did you visit the bank?

**Raman** : Sir, to open a bank account.

**Teacher** : Have you deposited money in the bank ever?

**Yashika** : Yes sir, I visited bank with my father and father deposited some money.

**Students** : Let us read a bank passbook.



| Date       | Amount deposited | Amount withdrawn | Balance |
|------------|------------------|------------------|---------|
| 10-10-2017 | 1500             | —                | 1500    |
| 20-10-2017 | 2000             | —                | 3500    |
| 25-10-2017 | —                | 1000             | 2500    |
| 30-10-2017 | 2500             | —                | 5000    |
| 31-10-2017 | —                | 1500             | 3500    |

In above pass book on different dates we have deposited or with drawn money.

**Teacher** : Children, how much total money was deposited on 10/10/2017 and 20/10/2017 ?

**Harman** :     1500  
                  + 2000  
                  ₹ 3500

**Teacher** : How much money was deposited during the month of October ?

**Yashika** :     1500  
                  + 2000  
                  + 2500  
                  ₹ 6000

**Teacher** : How much money was withdrawn during the month of October 2017 ?

**Harman** :     1000  
                  + 1500  
                  ₹ 2500

**Teacher** : What is the balance in passbook at the end of October 2017 ?

**Harman** :     6000  
                  - 2500  
                  ₹ 3500

**Teacher** : What is the balance in the passbook on dated 25/10/2017 ?

**Kamal** :     3500  
                  - 1000  
                  ₹ 2500







### 1. Solve the following :

|     |  |     |   |     |  |     |  |
|-----|--|-----|---|-----|--|-----|--|
| (a) | $\begin{array}{r} 203 \\ +415 \\ +131 \\ \hline \end{array}$ | (b) | $\begin{array}{r} 408 \\ +372 \\ +28 \\ \hline \end{array}$ | (c) | $\begin{array}{r} 726 \\ -513 \\ \hline \end{array}$ | (d) | $\begin{array}{r} 803 \\ -407 \\ \hline \end{array}$ |
|-----|--|-----|---|-----|--|-----|--|

### 2. Fill in the blanks :

|     |                  |                      |     |                 |                      |
|-----|------------------|----------------------|-----|-----------------|----------------------|
| (a) | $15 + 26 = 26 +$ | <input type="text"/> | (b) | $18 + 0 =$      | <input type="text"/> |
| (c) | $13 \times 1 =$  | <input type="text"/> | (d) | $25 \times 0 =$ | <input type="text"/> |
| (e) | $32 - 0 =$       | <input type="text"/> | (f) | $9 \div 9 =$    | <input type="text"/> |
| (g) | $28 \div 4 =$    | <input type="text"/> | (h) | $87 + 5 =$      | <input type="text"/> |
| (i) | $54 \div 9 =$    | <input type="text"/> | (j) | $16 \div 1 =$   | <input type="text"/> |
| (k) | $18 - 18 =$      | <input type="text"/> | (l) | $6 \times 9 =$  | <input type="text"/> |
| (m) | $0 \div 3 =$     | <input type="text"/> | (n) | $83 \div 83 =$  | <input type="text"/> |

### 3. Lets do :

- In a school bus there are 32 boys and 16 girls. How many children are there in the bus?
- Nirmal scored 93 marks in Punjabi and 98 marks in Maths. How much she secured in both the subjects?

### 4. Read the statements and solve :

- Kamal bought 50 gas balloons. 19 balloons flew away. How many balloons were left behind?
- Mankaran has 350 mangoes. He gave 145 mangoes to her sister Harkirat and rest are given to his friend Ramesh. How many mangoes did Ramesh get?

### 5. Solve the following questions :

- There are 58 toffees in a packet. How many toffees are in 16 such packets?
- There are seven days in a week. How many days are there in 52 weeks?



**6. Understand and Solve the following :**

- (a) 5 men can sit in a car. What is the number of cars required for 20 men?  
 (b) There are 368 cement bags in 8 trucks. Every truck has equal number of cement bags. Find out cement bags in one truck.

**Multiple Choice Questions Based on Basic Operations**

Read the problems carefully and choose out the correct option from the given options.

1. There are 55 children in a park. 5 more children reach there. Now find out the total number of children in the park? Recognise the basic operation:

(a)  $55 - 5$                       (b)  $55 + 5$                       (c)  $55 \div 5$                       (d)  $55 \times 5$

2. If every child is given 5 toffees, then number of toffees required for 35 children. Recognise the basic operation:

(a)  $35 - 5$                       (b)  $35 + 5$                       (c)  $35 \div 5$                       (d)  $35 \times 5$

3. The sum of two numbers is 120, if one number is 40, find the other number. Recognise the basic operation:

(a)  $120 - 40$                       (b)  $120 \times 40$                       (c)  $120 \div 40$                       (d)  $120 + 40$

4. In 8 boxes 264 books are arranged equally. What are the number of books in each box. Recognise the basic operation:

(a)  $264 - 8$                       (b)  $264 \div 8$                       (c)  $264 \times 8$                       (d)  $264 + 8$

5. There are 500 bricks in a block. If we sell 200 bricks how many bricks were left behind? Recognise the basic operation:

(a)  $500 - 200$                       (b)  $500 \times 200$                       (c)  $500 \div 200$                       (d)  $500 + 200$

6. Ten people planted 480 plants. Each one of them planted same number of plants. Find out the number of plants planted by one person. Recognize the basic operation.

(a)  $480 - 10$                       (b)  $480 \div 10$                       (c)  $480 \times 10$                       (d)  $480 + 10$

**For Teacher**

- Before expanding the basic operations, students should be given small problems and are asked to identify the basic operation. Identification of basic operation helps in solving the problem.

## 2.2 Addition and Subtraction

In class 3, we had learnt addition and subtraction of 3 digits number with carry over and without carrying. Similarly we can add and subtract 4 digits number. Addition and subtraction always starts from ones place or from the right side.

### Activity

Teacher will perform activities on 2 fundamental operations (add and subtract) with the help of currency notes. Teacher will give currency notes to Vansh and komal and ask them to add value of currency notes

For example, Komal has ₹ 225 and Vansh has ₹ 152 currency notes. The teacher will ask the students to total the amount they have? Students will add the value of currency notes and solve :

$$\begin{array}{r}
 \text{Komal has} \quad \quad \quad 225 \\
 \text{Vansh has} \quad \quad \quad + 152 \\
 \hline
 \text{Total amount} \quad \quad \quad 377
 \end{array}$$

Teacher will continue this activity, he now asks Komal to take her share from the total amount. When Komal receives her share ₹ 225 from the total amount, the remaining amount will be given to Vansh and amount is calculated as given below:

$$\begin{array}{r}
 \text{Total Amount} \quad \quad \quad 377 \\
 \text{Return to Komal} \quad \quad \quad - 225 \\
 \hline
 \text{Balance amount with Vansh} \quad \quad \quad 152
 \end{array}$$

Similarly this activity will be performed by the different groups of the students. The teacher will explain the students the activity of addition and subtraction and about its verification.

- $8+0=8, 0+8=8$  if we add 0 in a number or a number add in 0 result will be the same.
- If we deduct 0 from any number result will remain same  
 $8 - 0 = 8$



### 2.2.1 Addition and Subtraction Without Carry

Now we will do addition and subtraction sums without carry.

**Example 1 :** Add : 2213 + 4512

**Solution:**

| Step 1  | step 2   | step 3  | step 4   |
|---|--|---|--|
| Add ones  | add tens   | add hundreds  | add thousands  |
| $\begin{array}{r} 2213 \\ + 4512 \\ \hline 5 \end{array}$ | $\begin{array}{r} 2213 \\ + 4512 \\ \hline 25 \end{array}$ | $\begin{array}{r} 2213 \\ + 4512 \\ \hline 725 \end{array}$ | $\begin{array}{r} 2213 \\ + 4512 \\ \hline 6725 \end{array}$ |

**Example 2 :** Subtract : 4567 – 1234

**Solution:**

| Step 1  | step 2   | step 3  | step 4   |
|---|--|---|--|
| subtract ones   | subtract tens  | subtract hundreds   | subtract thousands   |
| $\begin{array}{r} 4567 \\ - 1234 \\ \hline 3 \end{array}$ | $\begin{array}{r} 4567 \\ - 1234 \\ \hline 33 \end{array}$ | $\begin{array}{r} 4567 \\ - 1234 \\ \hline 333 \end{array}$ | $\begin{array}{r} 4567 \\ - 1234 \\ \hline 3333 \end{array}$ |

### 2.2.2 Addition and Subtraction with Carry

In previous part we have done add and subtract numbers without carry

In this part we will do addition and subtraction with carry

**Example 3 :** Add : 3756 + 1464

**Solution:**

| Step 1  | step 2   | step 3  | step 4   |
|---|--|---|--|
| $\begin{array}{r} 3756 \\ + 1464 \\ \hline 0 \end{array}$ | $\begin{array}{r} 3756 \\ + 1464 \\ \hline 20 \end{array}$ | $\begin{array}{r} 3756 \\ + 1464 \\ \hline 220 \end{array}$ | $\begin{array}{r} 3756 \\ + 1464 \\ \hline 5220 \end{array}$ |



**Example 4 :** Subtract :  $5688 - 2189$

| Step 1  | step 2  | step 3   | step 4  |
|---|---|--|---|
| $\begin{array}{r} \textcircled{7} \textcircled{18} \\ 5688 \\ - 2189 \\ \hline 9 \end{array}$ | $\begin{array}{r} \textcircled{5} \textcircled{17} \textcircled{18} \\ 5688 \\ - 2189 \\ \hline 99 \end{array}$ | $\begin{array}{r} \textcircled{5} \textcircled{17} \textcircled{18} \\ 5688 \\ - 2189 \\ \hline 499 \end{array}$ | $\begin{array}{r} \textcircled{5} \textcircled{17} \textcircled{18} \\ 5688 \\ - 2189 \\ \hline 3499 \end{array}$ |

|  |  |
|--|--|
| $\begin{array}{r} 5688 \\ - 2189 \\ \hline 3499 \end{array}$ <p>Greater number<br/>Smaller number<br/>Difference</p>                       | <p>Verification :</p> $\begin{array}{r} 3499 \\ + 2189 \\ \hline 5688 \end{array}$ <p>difference<br/>smaller number<br/>greater number</p> |
| <p>* <b>Verification of subtraction :</b> If we add smaller number in the difference of two numbers then the answer is greater number.</p> |  |

**Example 5 :** Find the sum of numbers 3872, 4283 and 8075.

**Solution :**

$$\begin{array}{r} 3872 \\ + 4283 \\ + 8075 \\ \hline 16230 \end{array}$$

**Example 6 :** Find the sum  $6543 + 5039 + 832$ .

**Solution :**

$$\begin{array}{r} 6543 \\ + 5039 \\ + 832 \\ \hline 12414 \end{array}$$

**Example 7 :** Subtract 5908 from 7921.

**Solution :**

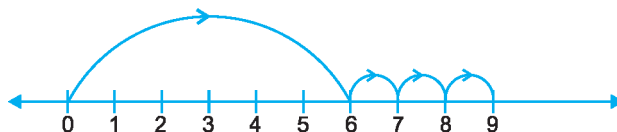
$$\begin{array}{r} 7921 \\ - 5908 \\ \hline 2013 \end{array}$$

### 2.2.3 Addition and subtraction on number line

First of all we will discuss about number line 

- A number line is a line on which numbers are written from left to right in ascending order

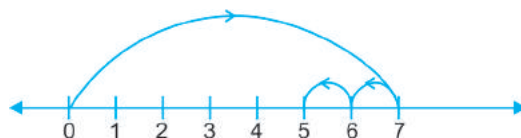
**Example 8 :** Add 6 and 3 with the help of number line.



- Solution :**
- ◆ First of all put a sign on 6 on number line
  - ◆ Then add 3, so go from left to right one by one three steps.
  - ◆ Now we will reach on 9 and this is our answer.  
 $6 + 3 = 9$

**Example 9 :** Subtract 2 from 7 with the help of number line

- Solution :**
- ◆ First of all put a sign on 7 on number line



- ◆ To subtract 2 ,so go back from right to left one by one two steps.
- ◆ Now we will reach on 5 and this is our answer.  
Therefore,  $7 - 2 = 5$

### Exercise 2.1

1. Add 4 and 2 on a number line



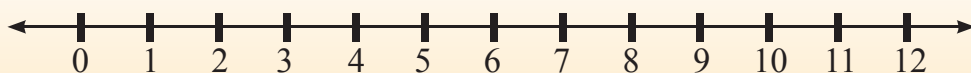
2. Add 6 and 4 on a number line.



3. Subtract 2 from 6 on number line.



4. Subtract 6 from 11 on a number line.



5. Solve the following :

- |                   |                   |                   |
|-------------------|-------------------|-------------------|
| (a) $374 + 202$   | (b) $356 + 122$   | (c) $4251 + 1244$ |
| (d) $7000 + 1789$ | (e) $999 - 234$   | (f) $798 - 130$   |
| (g) $9825 - 1214$ | (h) $7896 - 1234$ |                   |

6. Solve the following :

- |                          |                         |                       |
|--------------------------|-------------------------|-----------------------|
| (a) $769 + 584$          | (b) $649 + 161$         | (c) $3009 + 5691$     |
| (d) $2347 + 7437$        | (e) $769 + 444 + 325$   | (f) $688 + 100 + 135$ |
| (g) $2807 + 5938 + 1238$ | (h) $7644 + 166 + 1234$ | (i) $768 - 119$       |
| (j) $6307 - 4156$        | (k) $7503 - 1219$       | (l) $7000 - 1234$     |

7. Subtract and verify your answer :

- |                   |                   |                   |
|-------------------|-------------------|-------------------|
| (a) $7610 - 1733$ | (b) $6113 - 1167$ | (c) $6501 - 1212$ |
| (d) $4368 - 1239$ | (e) $7001 - 1678$ |                   |

## 2.4 Addition – Subtraction with Some Other Concepts

In previous part we have solved simple sums of addition and subtraction. In this part, some other problems will be discussed

**Example 1 :** Replace \* by correct digit

**Solution :**

$$\begin{array}{r}
 8\ 4\ 5 \\
 +\ 2\ 5\ * \\
 +\ 1\ *\ 6 \\
 \hline
 1\ *\ 2\ 4
 \end{array}$$

**Solution :**

$$\begin{array}{r}
 8\ 4\ 5 \\
 +\ 2\ 5\ 3 \\
 +\ 1\ 2\ 6 \\
 \hline
 1\ 2\ 2\ 4
 \end{array}$$



**Example 2 :** Replace \* by correct digit :

$$\begin{array}{r} \text{Solution :} \quad 7 \ 8 \ 4 \ 3 \\ + \ 2 \ * \ 0 \ 9 \\ + \ 1 \ 3 \ 8 \ * \\ \hline \quad * \ 8 \ * \ 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{Solution :} \quad 7 \ 8 \ 4 \ 3 \\ + \ 2 \ 6 \ 0 \ 9 \\ + \ 1 \ 3 \ 8 \ 2 \\ \hline 1 \ 1 \ 8 \ 3 \ 4 \\ \hline \end{array}$$

**Example 3 :** Replace \* by correct digit :

$$\begin{array}{r} \text{Solution :} \quad 3 \ 4 \ * \ 6 \\ - \ 1 \ * \ 2 \ 4 \\ \hline \quad * \ 1 \ 3 \ * \\ \hline \end{array}$$

$$\begin{array}{r} \text{Solution :} \quad 3 \ 4 \ 5 \ 6 \\ - \ 1 \ 3 \ 2 \ 4 \\ \hline \quad 2 \ 1 \ 3 \ 2 \\ \hline \end{array}$$

**Example 4 :** Replace \* by correct digit :

$$\begin{array}{r} \text{Solution :} \quad 5 \ 4 \ 0 \ 9 \\ - \ 2 \ * \ 3 \ * \\ \hline \quad * \ 7 \ * \ 6 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \ 4 \ 0 \ 9 \\ - \ 2 \ 6 \ 3 \ 3 \\ \hline 2 \ 7 \ 7 \ 6 \\ \hline \end{array}$$

**Example 5 :** Find the value of  $52 + 36 - 32$  :

$$\begin{array}{r} \text{Solution :} \quad \text{Step 1} \\ 5 \ 2 \\ + \ 3 \ 6 \\ \hline 8 \ 8 \end{array}$$

$$\begin{array}{r} \text{Step 2} \\ 8 \ 8 \\ - \ 3 \ 2 \\ \hline 5 \ 6 \end{array}$$

**Example 6 :** Find the value of  $673 - 208 + 426$  :

$$\begin{array}{r} \text{Solution :} \quad \text{Step 1} \\ 6 \ 7 \ 3 \\ - \ 2 \ 0 \ 8 \\ \hline 4 \ 6 \ 5 \end{array}$$

$$\begin{array}{r} \text{Step 2} \\ 4 \ 6 \ 5 \\ + \ 4 \ 2 \ 6 \\ \hline 8 \ 9 \ 1 \end{array}$$

**For Teacher** - Do the examples 5 and 6 by changing the order of the of given numbers.





## Exercise 2.2

1. Replace each \* by correct digit in each of the following:

$$\begin{array}{r} \text{(a)} \quad 7 \quad 6 \quad 5 \\ + \quad * \quad 1 \quad * \\ \hline 9 \quad * \quad 8 \end{array}$$

$$\begin{array}{r} \text{(b)} \quad * \quad 6 \quad 5 \\ + \quad 2 \quad 3 \quad * \\ \hline 9 \quad * \quad 9 \end{array}$$

$$\begin{array}{r} \text{(c)} \quad 2 \quad 4 \quad * \quad 7 \\ + \quad * \quad 9 \quad 1 \quad 7 \\ + \quad 2 \quad 1 \quad 5 \quad 4 \\ \hline 8 \quad 5 \quad 0 \quad * \end{array}$$

$$\begin{array}{r} \text{(d)} \quad 2 \quad * \quad 8 \quad 3 \\ + \quad * \quad 3 \quad 7 \quad 5 \\ + \quad 5 \quad 7 \quad * \quad 4 \\ \hline 9 \quad 8 \quad 2 \quad * \end{array}$$

$$\begin{array}{r} \text{(e)} \quad * \quad 8 \quad 7 \\ - \quad 3 \quad 4 \quad * \\ \hline 6 \quad * \quad 5 \end{array}$$

$$\begin{array}{r} \text{(f)} \quad 9 \quad 8 \quad * \\ - \quad * \quad 7 \quad 2 \\ \hline 8 \quad * \quad 5 \end{array}$$

$$\begin{array}{r} \text{(g)} \quad 7 \quad 2 \quad * \quad 1 \\ - \quad * \quad 1 \quad 2 \quad 3 \\ \hline 3 \quad * \quad 5 \quad 8 \end{array}$$

$$\begin{array}{r} \text{(h)} \quad 7 \quad 8 \quad * \quad 2 \\ - \quad 5 \quad 1 \quad 3 \quad * \\ \hline 2 \quad * \quad 5 \quad 7 \end{array}$$

2. Solve the following:

$$\text{(a)} \quad 48 - 12 + 18$$

$$\text{(b)} \quad 86 - 35 - 12$$

$$\text{(c)} \quad 637 - 452 + 315$$

$$\text{(d)} \quad 637 + 315 - 452$$

$$\text{(e)} \quad 1837 + 3043 - 413$$

$$\text{(f)} \quad 937 - 413 + 3043$$

$$\text{(g)} \quad 1003 - 417 - 284$$

$$\text{(h)} \quad 9419 - 4419 + 2105$$

$$\text{(i)} \quad 2419 + 5005 - 4419$$

$$\text{(j)} \quad 2294 + 1828 - 1374$$



## 2.5 Problems related to Addition and Subtraction

Earlier we learnt sum of simple addition and subtraction. Now in this part, we will discuss addition and subtraction of problems of daily life.

**Example 1 :** Find the sum of 4567, 3262 and 2171.

**Solution :**

$$\begin{array}{r} 4567 \\ +3262 \\ +2171 \\ \hline 10000 \end{array}$$

The sum of 4567, 3262 and 2171 is 10000.

**Example 2 :** What is the difference between 7613 and 1456 ?

**Solution :**

$$\begin{array}{r} 7613 \\ -1456 \\ \hline 6157 \end{array}$$

Difference between 7613 and 1456 is 6157

**Word Problems :** In statement sums, first of all read carefully the problem and then solve it

**Example 3 :** There are 2676 men, 2571 women and 1047 children in a village. Find the total population of the village.

**Solution :**

|                                 |   |             |
|---------------------------------|---|-------------|
| Number of men in village        | = | 2676        |
| Number of women in village      | = | 2571        |
| Number of children in village   | = | 1047        |
| Total population of the village | = | 2676        |
|                                 | + | 2571        |
|                                 | + | 1047        |
|                                 |   | <u>6294</u> |

Therefore, total population of the village is 6294.



**Example 4 :** Find the number which is

- (a) 209 more than 4997  
 (b) 476 less than 2191

**Solution :** (a) To find out the required value find the addition of 4997 and 209.

$$\begin{array}{r} 4997 \\ + 209 \\ \hline 5206 \end{array}$$

Required number is : 5206

(b) To find out the required value subtract 476 from 2191.

$$\begin{array}{r} 2191 \\ - 476 \\ \hline 1715 \end{array}$$

Required number is : 1715

**Example 5 :** Which number should be added to 3678 to get 7090. Also verify the answer.

**Solution :** Required addition = 7090, given number = 3678, to find the required number subtract 3678 from 7090.

$$\begin{array}{r} 7090 \\ - 3678 \\ \hline 3412 \end{array}$$

Required number : 3412

**Verification :** Let us verify that by adding 3678 in 3412 we get 7090 or not.

$$\begin{array}{r} 3678 \text{ smaller number} \\ + 3412 \text{ difference} \\ \hline 7090 \text{ sum} \end{array}$$

**Example 6 :** Raju bought a TV worth ₹ 4766, an almirah worth ₹ 2179 and a table worth ₹ 1100. What is the total expenditure of Raju?



**Solution :**

|                   |   |               |
|-------------------|---|---------------|
| Price of TV       | = | ₹ 4766        |
| Price of Almirah  | = | ₹ 2179        |
| Price of table    | = | ₹ 1100        |
| Total expenditure | = | 4766          |
|                   |   | + 2179        |
|                   |   | + 1100        |
|                   |   | <u>₹ 8045</u> |

Therefore, total expenditure of Raju is ₹ 8045.

**Example 7 :** Find the largest and the smallest 4 digit number by using digits 4,2,6,7. Find the sum and the difference of these numbers ?

**Solution :** From number 4, 2, 6 and 7

|                 |   |              |              |             |
|-----------------|---|--------------|--------------|-------------|
| Largest number  | = | 7642         |              |             |
| Smallest number | = | 2467         |              |             |
| Sum             | = | 7642         | Difference = | 7642        |
|                 |   | + 2467       |              | - 2467      |
|                 |   | <u>10109</u> |              | <u>5175</u> |

**Example 8 :** If the sum of two numbers is 9900. One number is 7645. Find the other number?

**Solution :**

|                    |   |             |
|--------------------|---|-------------|
| Sum of two numbers | = | 9900        |
| First number is    | = | 7645        |
| Second number      | = | 9900        |
|                    |   | - 7645      |
|                    |   | <u>2255</u> |

Therefore, the second number is 2255.

**Example 9 :** Jagtar singh bought a radio worth ₹ 1430. He gave ₹ 2000 note to the seller. How much money seller will return to Jagtar Singh?

**Solution :**

|                       |   |        |
|-----------------------|---|--------|
| Money given to seller | = | ₹ 2000 |
| Price of radio        | = | ₹ 1430 |



$$\begin{array}{r}
 \text{Balance amount} \quad = \quad 2200 \\
 \quad \quad \quad \quad \quad \quad - \quad 1430 \\
 \quad \quad \quad \quad \quad \quad \hline
 \quad \quad \quad \quad \quad \quad 570
 \end{array}$$

Seller will return ₹ 570 to Jagtar Singh.

### Exercise 2.3

1. (a) Find the sum of 1198, 1296 and 796.  
(b) Find the difference 7693 and 4566.
2. The price of a fan is ₹ 1467 and the price of a cooler is 2275. How much total amount is required to buy both the things?
3. Karan had ₹ 9080. He bought clothes worth ₹ 3705. How much amount was left with him?
4. In a library there are 3115 Punjabi books, 2876 Maths books and 976 English books. What is the total number of books in library?
5. The sum of two numbers is 9030. One number is 2141. Find the other number.
6. What should be added in 7569 to get 9000?
7. Find the number which is:
  - (a) 778 more than 3792
  - (b) 515 less than 3777
8. The price of an almirah is ₹ 1595 and price of refrigerator is ₹ 6055 more than Almirah.
  - (a) Find the price of refrigerator
  - (b) Find the total price of almirah and refrigerator
9. Find the greatest and smallest 4 digit numbers by using digits 1,4,6 and 7 and also find the sum and difference of these numbers.
10. Find the sum of the smallest 4 digit number and greatest 3 digit number.
11. Find the difference between place value of 8 and place value of 7 in the number 9874.
12. Subtract 248 from smallest 4 digit number.
13. Satnam had ₹ 765, his uncle gave him ₹ 250. Satnam gave ₹ 370 to his sister from the total amount. How much amount is left with him?



14. Rozi had ₹ 1000. She bought a pair of shoes worth ₹ 150 and a suit worth ₹ 360. How much money was left with her?
15. Sandeep has ₹ 785 in his bank account. How much money should he deposit so that his total balance becomes ₹ 1000 ?
16. The distance between Ferozpur to Chandigarh is 220 K.m. However distance between Ferozpur to Bathinda is 98 K.m. How much distance from Ferozpur to Chandigarh is more than that of Ferozpur to Bathinda?

## 2.6 Multiplication of numbers

### Activity

Satnam of fourth class is very happy today. All the students are going to visit Jallian Wala bagh. There was a conversation between teacher and students of class 4.

**Teacher** : How many students are there in our school?.

*(There was no response).*

**Teacher** : Lets write down and sum up.

| Classes | Students                                   |
|---------|--|
| I       | 25   |
| II      | 30   |
| III     | 28   |
| IV      | 32   |
| V       | 30   |
|         | <hr style="width: 50px; margin: 0 auto;"/> |
|         | 145  |

**Teacher** : Lets write down and sum up.

**Students** : Sir there are 145 students in our school.

**Teacher** : How many teachers are there in our school?

**Students** : There are 5 teachers.

**Teacher** : Tell me number of teachers and students in total.

**Students** : 150

**Teacher** : Tell me the means of transport to go from Gurdaspur to Amritsar.



**Student I** : By bus  
**Student II** : By train  
**All Students** : Sir, by bus.  
**Teacher** : If you want to travel by bus, there are 50 seats available in each bus. How many buses are required for all of us to go there?

**Student I** : 1 bus = 50 seats, 2 buses = 50 + 50 seats and 3 buses = 50 + 50 + 50 = 150 seats.

**Teacher** : Tell me how many buses are required to visit there.

**Students** : 3 buses

**Teacher** : Children ! multiplication is just repeated addition.

1 bus = 50 seats 3 buses =  $3 \times 50 = 150$  seats

- \* Total number of students = 145
- \* Total number of teachers = 5
- \* Total number of passengers =  $145 + 5 = 150$
- \* Total number of seats required = 150
- \* Number of seats in a bus = 50
- \* Number of buses required = 3 buses ( $\therefore 3 \times 50 = 150$ )  
= 3 buses

### Activity

Finally day has come to visit Jallianwala bagh. It was 7:00am. The students are standing in 6 rows. Each row comprising 24 students. Teacher asked Agampreet to count.

**Teacher** : Where are we going?

**Students** : Jallianwala bagh

**Teacher** : The Jallianwala Bagh massacre, took place on 13 April, 1919. The British Army under the command of General Dyer killed thousands of unarmed people.  
 (In the mean time the buses arrived.)

**Amanpreet:** Sir, here come the buses!

**Teacher :** Let us sit in sequence

| <b>Amanpreet:</b> | <b>Rows</b> | <b>Students</b> |                      |
|-------------------|-------------|-----------------|----------------------|
|                   | 1           | 24              |                      |
|                   | 2           | 24              |                      |
|                   | 3           | 24              |                      |
|                   | 4           | 24              |                      |
|                   | 5           | 24              |                      |
|                   | 6           | 24              |                      |
|                   |             | <u>144</u>      | Total students = 144 |

**Teacher :** Multiplication is repeated addition of same numbers. We can multiply instead of counting  $24 \times 6 = 144$

**Raman :** Mam our seat is two seater. What is its length?

**Teacher :** It is 4 feet long. If there are 5 seats like this. What will be the total length of the seats ?

**Raman :** Mam  $4 + 4 + 4 + 4 + 4 = 20$  feet

**Teacher :** Instead of repeated addition we will multiply. Because multiplication is better than repeated addition. So,  $5 \times 4 = 20$ , feet.

### Activity

**Driver :** Sir, diesel is to be filled in tanks of buses, 25 litre diesel is required for each bus.

**Teacher :** If the rate of 1 litre of diesel is ₹ 52 and a bus requires 25 litre diesel What will be the total amount required to fill the tank for one bus?

Two different students calculate as under :





Raman's Method

|    |      |    |        |
|----|------|----|--------|
| ×  | 50   | 2  |        |
| 20 | 1000 | 40 | = 1040 |
| 5  | 250  | 10 | = 260  |
|    |      |    | <hr/>  |
|    |      |    | 1300   |

Aman's method

|       |
|-------|
| 52    |
| × 25  |
| <hr/> |
| 260   |
| 1040  |
| <hr/> |
| 1300  |

Sir, the cost of diesel is ₹ 1300.

**Teacher** : What is the amount required for four buses

**Aman** : Sir, ₹ 1300 + ₹ 1300 + ₹ 1300 + ₹ 1300 = ₹ 5200.

**Teacher** : Aman, do multiply instead of 7 repeated addition.

We can write it as ₹ 1300 × 4 = ₹ 5200.

### Activity

$$53 \times 3$$

| Tens | Tens | Tens | Tens | Tens | Ones | Ones | Ones |
|------|------|------|------|------|------|------|------|
| ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |
| ○    | ○    | ○    | ○    | ○    | ○    | ○    | ○    |

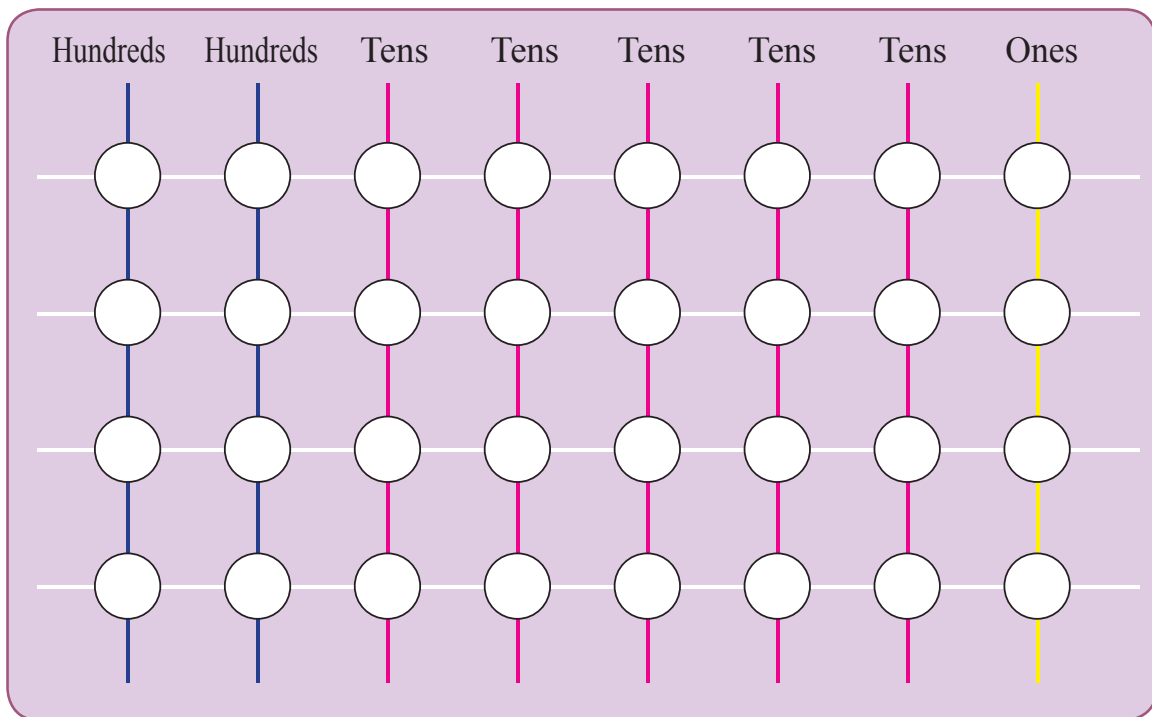
**For Teacher** - In the above mentioned activity, ..... first given number, strips are placed vertically according to tens and ones of the first number. Then strips are placed horizontally according to the number by which the multiplication is to be done. By counting points of intersection, the product is found out.



In order to multiply 53 by 3, Teacher will paste 5 strips of pink colour on which tens should be written and 3 strips of yellow colour on which ones should be written. Now teacher pastes white colour strips which intersects all the strips according to the figure. Teacher put white points where the white strip intersects the other strips. Teacher will ask the students to count white points on tens place and ones place separately. There are 15 points at tens place and 9 points on ones place.

$$\begin{array}{r}
 15 \text{ tens} = 150 \\
 9 \text{ ones} = +9 \\
 \hline
 159
 \end{array}
 \quad
 \text{expanded method :}
 \quad
 \begin{array}{r}
 = 50 \times 3 + 3 \times 3 \\
 = 150 + 9 \\
 = 159
 \end{array}$$

**251 × 4**



For this multiplication teacher will paste 2 strips of blue colour, 5 strips of pink colour and one strip of yellow colour as shown in the figure. Now paste 4 white coloured strips in such a way that this intersect all strips. Where strips intersects, teacher will mark white points and ask the children to count the white points on hundreds place, tens place and ones place separately.



Students will count and there are 8 white points on hundreds place, 20 white points on tens place and 4 white points on ones place. Now add all points as under

|                  |  |                   |
|------------------|--|-------------------|
| 8 hundreds = 800 | notation expanded method : = $200 \times 4 + 50 \times 4 + 1 \times 4$ |                   |
| 20 tens = 200    |  | = $800 + 200 + 4$ |
| 4 ones = 4       |  | = 1004            |
| <u>1004</u>      |  |                   |

### 2.6.1 Column Method of Multiplication

It is the simplest and commonly used method of multiplication. In this method numbers are written in column and its explanation is as follows:

**Example 1 :**  $143 \times 4$

**Solution :**

|          |      |      |     |
|----------|------|------|-----|
| hundreds | tens | ones |     |
| 1        | 4    | 3    |     |
|          |      |      | × 4 |
|          |      |      |     |

**Step 1 :** Multiply 4 by 3 ones,  $4 \times 3 = 12$ . We find 2 ones and 1 tens. Now write 2 in ones column and 1 is carry on the top of 4.

|          |      |      |          |
|----------|------|------|----------|
| hundreds | tens | ones | ①        |
| 1        | 4    | 3    | 1 4 3    |
|          |      |      | × 4      |
|          |      |      | <u>2</u> |

**Step 2 :** Multiply 4 by 4 tens, we get  $4 \times 4 = 16$ . Now add  $16 + 1 = 17$ . Write 7 in tens column and 1 is carry on the top of 1 (which is at hundreds place)

|         |     |     |            |
|---------|-----|-----|------------|
| hundred | ten | one | ①          |
| 1       | 4   | 3   | 1 4 3      |
|         |     |     | × 4        |
|         |     |     | <u>7 2</u> |

**Step 3 :** Multiply 4 by 1 at hundreds place,  $1 \times 4 = 4$  and add 1 which is carry  $4 + 1 = 5$ , we get 5. It has five hundreds. Write it at hundreds column.

|         |     |            |  |
|---------|-----|------------|--|
|         | ①   |            |  |
| hundred | ten | one        |  |
| 1       | 4   | 3          |  |
|         |     | $\times 4$ |  |
| <hr/>   |     |            |  |
|         | 7   | 2          |  |
| <hr/>   |     |            |  |

|       |   |            |
|-------|---|------------|
|       | ① |            |
| 1     | 4 | 3          |
|       |   | $\times 4$ |
| <hr/> |   |            |
| 5     | 7 | 2          |
| <hr/> |   |            |

So  $143 \times 4 = 572$

**Example 2 :** (a)

|       |   |   |            |
|-------|---|---|------------|
|       | H | T | O          |
|       | ② | ③ |            |
|       | 7 | 4 | 5          |
|       |   |   | $\times 6$ |
| <hr/> |   |   |            |
| 4     | 4 | 7 | 0          |
| <hr/> |   |   |            |

(b)

|       |    |   |   |            |
|-------|----|---|---|------------|
|       | TH | H | T | O          |
|       | ②  | ② |   |            |
|       | 1  | 3 | 4 | 0          |
|       |    |   |   | $\times 7$ |
| <hr/> |    |   |   |            |
| 9     | 3  | 8 | 0 |            |
| <hr/> |    |   |   |            |

### 2.6.1.1. Multiply a number with 2 digit number

**Example 3 :**

$43 \times 14$

**Solution :**

**Step 1 :** In column method multiply 4 ones (of lower ones) with 3 ones (of upper ones) and then multiply 4 ones by 4 tens (upper tens).

|       |             |
|-------|-------------|
|       | ①           |
| tens  | ones        |
| 4     | 3           |
|       | $\times 14$ |
| <hr/> |             |
| 1     | 7           |
| <hr/> |             |
|       | 2           |

**Step 2 :** Now multiply 1 ones (lower ones) by 3 ones (upper ones) and 1 ones (lower ones) by 4 tens (upper ones) respectively. when we multiply by the number below at tens place then write 0 at ones place.



$$\begin{array}{r}
 \text{tens ones} \\
 4 \ 3 \\
 \times 1 \ 4 \\
 \hline
 1 \ 7 \ 2 \\
 4 \ 3 \ 0 \\
 \hline
 \end{array}$$

**Step 3 :** Now add answers 172 and 430.

$$\begin{array}{r}
 \text{tens ones} \\
 4 \ 3 \\
 \times 1 \ 4 \\
 \hline
 1 \ 7 \ 2 \\
 4 \ 3 \ 0 \\
 \hline
 6 \ 0 \ 2
 \end{array}$$

### 2.6.2 Expanded Notation Method of Multiplication

Next method of multiplication is Expanded notation method. In this method largest number is written in expanded form according to their place values and multiply each separately.

$$\begin{aligned}
 54 \times 5 &= (50 + 4) \times 5 \\
 &= 50 \times 5 + 4 \times 5 \\
 &= 250 + 20 \\
 &= 270
 \end{aligned}$$

$$\begin{aligned}
 213 \times 6 &= (200 + 10 + 3) \times 6 \\
 &= 200 \times 6 + 10 \times 6 + 3 \times 6 \\
 &= 1200 + 60 + 18 \\
 &= 1278
 \end{aligned}$$

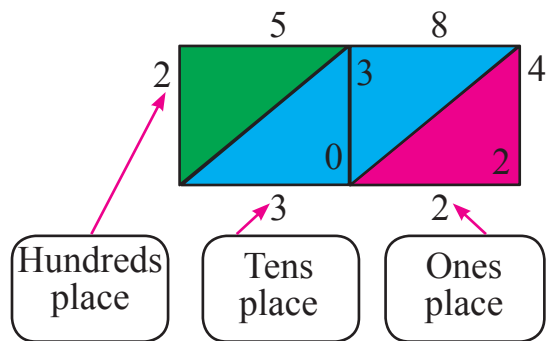
### 2.6.3 Lattice Algorithm method of multiplication

Another method of multiplication is Lattice Algorithm. In this method one number is written horizontally and other number written vertically along with the grid box and then solved as follows:

**For Teacher** - We will use 0 instead of commonly used '×' at lower tens place, hundreds place while multiplying 2 or more than 2 digits multiplication.



**Example 1 :**  $58 \times 4$ .



**Step 1 :**  $8 \times 4 =$ 

|   |
|---|
| 3 |
|   |
| 2 |

 write like this

$5 \times 4 =$ 

|   |
|---|
| 2 |
|   |
| 0 |

 write like this

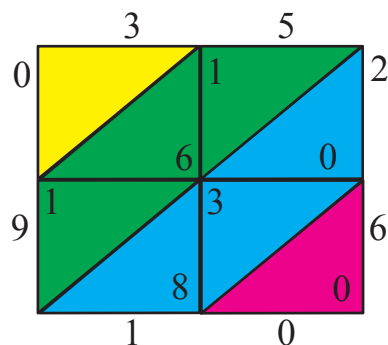
**Step 2 :** Write ones place number of the product = 2 (pinkbox).

**Step 3 :** Write sum of digits added diagonally (blue colour box)  
 $3 + 0 = 3$ .

**Step 4 :** On hundreds place, write 2 (green box).

**Step 5 :** We get digits 2, 3, 2, which gives number 232, which is product of  $58 \times 4$ .

**Example 2 :**  $35 \times 26$



**Step 1 :**  $35 \times 2$ , (shown in picture)

**Step 2 :**  $35 \times 6$ , (shown in picture)

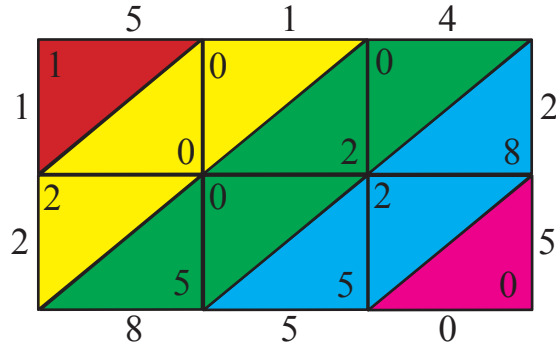
**Step 3 :** Add diagonally ( sum of digits in same coloured box) digits are 0,9,1,0, we get 910. So,  $35 \times 26=910$

**Example 3 :**  $514 \times 25$

Write numbers According to above steps.

Digits 1,2,8,5,0 make number 12850.

Hence,  $514 \times 25 = 12850$



**Exercise 2.4**

**1. Find the product of the following:**

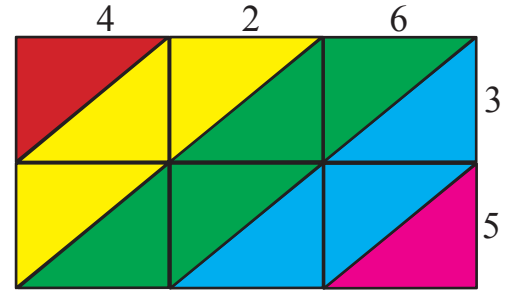
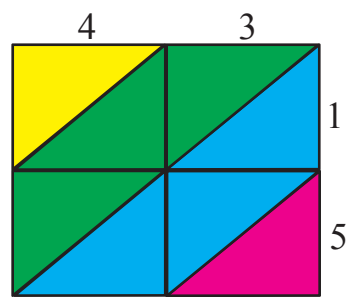
- (a)  $41 \times 4$
- (b)  $25 \times 36$
- (c)  $445 \times 22$
- (d)  $269 \times 36$
- (e)  $368 \times 19$
- (f)  $145 \times 68$
- (g)  $150 \times 59$
- (h)  $4639 \times 2$
- (i)  $1569 \times 6$
- (j)  $1179 \times 8$
- (k)  $1988 \times 5$
- (l)  $5000 \times 2$
- (m)  $303 \times 31$
- (n)  $425 \times 17$
- (o)  $706 \times 12$
- (p)  $308 \times 28$

**2. Find product using expanded notation method :**

- (a)  $52 \times 7$
- (b)  $63 \times 4$
- (c)  $81 \times 9$
- (d)  $123 \times 5$
- (e)  $205 \times 6$

**3. Find product using Lattice algorithm :**

- (a)  $43 \times 15$
- (b)  $426 \times 35$



## 2.7 Multiply a number by 1, 10, 100, 1000

Here we discuss an important rule of multiplication. When we multiply a number by 1, 10, 100 and 1000 then we can write the answer directly.

$$\begin{array}{rclcl} \text{For example} & 7 & \times & 1 & = & 7 \\ & 7 & \times & 10 & = & 70 \\ & 7 & \times & 100 & = & 700 \\ & 7 & \times & 1000 & = & 7000 \end{array}$$

When we multiply first number by second number and second number by first number answer will remain same.

For example :

$$10 \times 7 = 7 \times 10$$

$$10 \times 7 = 70$$

$$7 \times 10 = 70$$

- $9 \times 0 = 0, 0 \times 9 = 0$ . If we multiply a number by 0 or 0 is multiplied by any number, answer will always be 0.
- $8 \times 1 = 8$  or  $1 \times 8 = 8$ , if we multiply a number by 1 or 1 is multiplied by any number, the answer will always be the number itself.

### Exercise 2.5

#### 1. Fill in the blanks

- |                                     |                                |
|-------------------------------------|--------------------------------|
| (a) $4 \times 1 = \square$          | (i) $4 \times 10 = \square$    |
| (b) $5 \times 10 = \square$         | (j) $7 \times 100 = \square$   |
| (c) $6 \times 100 = \square$        | (k) $9 \times 1000 = \square$  |
| (d) $190 \times 0 = \square$        | (l) $10 \times 1000 = \square$ |
| (e) $19 \times \square = 1900$      | (m) $15 \times \square = 150$  |
| (f) $\square \times 100 = 1600$     | (n) $\square \times 10 = 760$  |
| (g) $\square \times 791 = 0$        | (o) $798 \times \square = 798$ |
| (h) $\square \times 9 = 9 \times 8$ |                                |



## 2.8 Problems Based on Multiplication

In previous part we have learnt to solve multiplication sums with different methods. In this part we will learn use of multiplication in problems of daily life.

**Example 1 :** The cost of 1 almirah is ₹ 2169. Find the cost of 4 such almirahs?

**Solution :** The cost of 1 almirah is = ₹ 2169

The cost of 4 almirah is =  $4 \times 2169$  [more than 2169]

$$\begin{array}{r} 2169 \\ \times 4 \\ \hline 8676 \end{array}$$

Therefore, The cost of 4 almirahs will be ₹ 8676.

**Example 2 :** Salary of Charang Singh is ₹ 17850 per month. How much amount he earns in 5 months ?

**Solution :** 1 months salary = ₹ 17850

5 months salary = ₹  $17850 \times 5$

$$\begin{array}{r} 17850 \\ \times 5 \\ \hline 89250 \end{array}$$

Therefore, salary of 5 months is ₹ 89250.

**Example 3. :** In a bundle there are 144 sticks. How many sticks are there in 12 such bundles?

**Solution :** In 1 bundle = 144 sticks

In 12 such bundles =  $12 \times 144$  sticks [more than 144]

$$\begin{array}{r} 144 \\ \times 12 \\ \hline 288 \\ 1440 \\ \hline 1728 \end{array}$$

Therefore, there will be 1728 sticks in 12 bundles.



**Example 4 :** There are 458 balls in one bag. How many balls are there in 15 such bags?

**Solution :** Number of balls in one bag = 458

Number of balls in 15 bags =  $458 \times 15$

$$\begin{array}{r} 458 \\ \times 15 \\ \hline 2290 \\ 4580 \\ \hline 6870 \end{array}$$

Therefore, there will be 6870 balls in 15 bags.

**Example 5 :** If you spend ₹ 35 daily. How much amount you would spend in the month of January?

**Solution :** Daily spent money = ₹ 35

Number of days in January = 31

Amount spent in the month of January =  $35 \times 31$

$$\begin{array}{r} 35 \\ \times 31 \\ \hline 35 \\ 1050 \\ \hline 1085 \end{array}$$

Therefore, amount spent in month of January of is ₹ 1085.





## Exercise 2.6

1. Cost of 1 notebook is ₹ 15. Find the cost of 9 such notebooks?
2. There are 17 pencils in a box. How many pencils are there in 19 such boxes ?
3. There are 79 beads in a chain. How many beads are there in 68 such chains ?



4. The cost of a toy cycle is ₹ 1560. Find total cost of 6 such toy cycles ?
5. There are 11 players in a cricket team. How many players are there in 12 such teams ?
6. A box contains 1440 soaps. Find the number of soaps in 6 such boxes ?

7.

| Rate list  |        |               |
|--|--------|---------------|
| Fruits   |        | price per kg. |
|   | Apple  | ₹ 120         |
|   | Banana | ₹ 140         |
|   | Guava  | ₹ 35          |
|  | Orange | ₹ 45          |

Your mom went to market—

- (a) She bought 2 kg apples, 2 kg. guava. How much amount she will pay to the seller ?
  - (b) If she bought 3 kg. oranges and 2 kg. pomegranate. What amount she will pay to seller ?
8. These all notes and coins Karan received on his birthday. How much total amount did Karan receive?



9. A car covers a distance of 16 km in a litre. How much distance it will cover in 28 litres ?
10. A factory produces 125 soap bars in an hour. How many such soap bars will be produced in 8 hours ?

## 2.9 Division

In earlier parts we have discussed 3 fundamental operations of arithmetic. In this part we will discuss 4th operation of arithmetic. *i.e.*, Division

The teacher will teach the concept division following an activity shown below :

### Activity

Teacher will distribute currency notes worth ₹666 among 6 students and tell them to distribute the amount equally.

**Teacher** : How will you distribute the amount equally among you 6 ?

**Student** : Sir, give ₹100 to each of us.

**Teacher** : Now how much amount is left?

**Student** : Sir, ₹ 66

**Teacher** : How shall we distribute ₹66

**Students** : Sir give ₹ 10 to each of us

**Teacher** : Now how much amount is left ?

**Student** : ₹ 6

**Teacher** : How much money will you get now?

**Student** : Sir, ₹ 1 each

**Teacher** : Now how much amount is left?

**Student** : Nothing

**Teacher** : How much amount do you each get?

$$\begin{array}{r}
 666 \\
 -600 \\
 \hline
 66 \\
 -60 \\
 \hline
 6 \\
 -6 \\
 \hline
 0
 \end{array}
 \quad
 \begin{array}{l}
 6 \times \boxed{100} \\
 6 \times \boxed{10} \\
 6 \times \boxed{1}
 \end{array}$$



**Students :** (after counting)  $100+10+1=111$

Example shows how division can be solved by repeatedly subtracting the same number

$$\begin{array}{r}
 \text{Divisor} \rightarrow 6 \overline{) 666} \quad (111 \leftarrow \text{Quotient} \\
 \underline{6} \downarrow \\
 06 \\
 \underline{-6} \downarrow \\
 06 \\
 \underline{-6} \\
 0 \leftarrow \text{Remainder}
 \end{array}$$

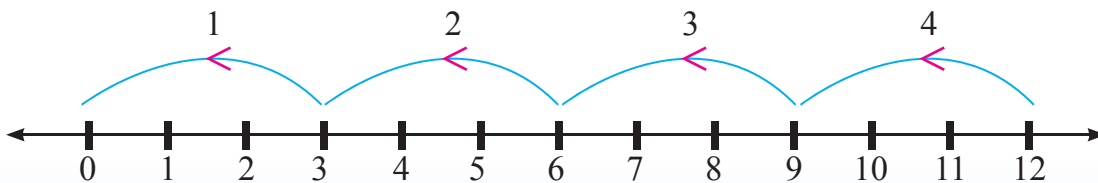
There are different methods to perform division. The number to be divided is called dividend, the number by which division is carried out is called divisor, left out number if any, is called a remainder and the answer is called quotient.

### 2.9 Division on number line

Here we shall discuss first method of division on a number line. Distribute 12 copies among 3 children.

- Take number 1 to 12 on number line.
  - We have to distribute this among 3 children.
  - Make it every 3 step difference.
- (Means from 12 to 0, 3 steps difference)

**Method 1.** Division on number line.



Four times copies have been distributed so everyone will get 4 copies each.

$$12 \div 3 = 4$$



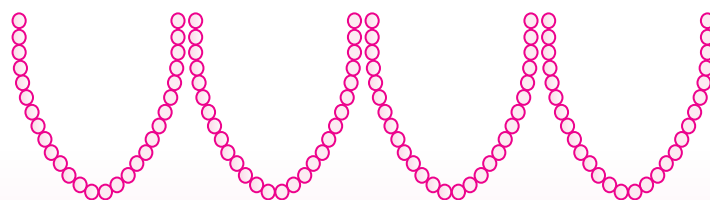
### 2.9.2 Division with Repeated Subtraction Method

This is improvised method of division. In this method division can be solved by repeated (or continued) subtraction. In this method, number of parts in which the dividend is to be divided, that number has to be subtracted repeatedly until zero is the remainder. Number of lines you subtract, that is your answer.

**Method 2.** 28 flowers make a garland. How many garlands can be made from 112 flowers ?

$$\begin{array}{r}
 112 \\
 - 28 \\
 \hline
 84 \\
 - 28 \\
 \hline
 56 \\
 - 28 \\
 \hline
 28 \\
 - 28 \\
 \hline
 00
 \end{array}$$

1st garland  
2nd garland  
3rd garland  
4th garland



Multiplication fact

$$28 \times 4 = 112$$

Division fact - 1

$$112 \div 4 = 28$$

Division fact - 2

$$112 \div 28 = 4$$

#### 0 Divided by a number.

Given an empty chalk box to a child and ask him to distribute equal number of chalk sticks to 5 children. How many chalk sticks does everyone get ?

$$0 \div 5 = 0$$

Teacher will explain when we divide 0 by any number, answer will always remain 0.

\*  $5 + 0 = 5$ ,  $5 - 0 = 5$      $5 \times 0 = 0$      $5 \div 0$  Impossible.

- When we divide 0 by a number answer will always remain 0
- Division by 0 is not possible



Add the zero or subtract the zero  
 The difference does not matter  
 We are left with what we had already  
 You should understand it better  
 If we multiply with zero,  
 everything would zero  
 Division with zero isn't possible,  
 infinity makes it hero

**Exercise 2.7**

**1. Fill in the blanks :**

|                           |                             |
|---------------------------|-----------------------------|
| 1. $18 \div 9 = \square$  | 2. $77 \div 7 = \square$    |
| 3. $48 \div 8 = \square$  | 4. $78 \div \square = 6$    |
| 5. $42 \div 7 = \square$  | 6. $84 \div 14 = \square$   |
| 7. $28 \div \square = 7$  | 8. $0 \div 8 = \square$     |
| 9. $50 \div 5 = \square$  | 10. $12 \div 1 = \square$   |
| 11. $54 \div \square = 9$ | 12. $\square \div 15 = 1$   |
| 13. $70 \div 5 = \square$ | 14. $100 \div 10 = \square$ |
| 15. $81 \div 9 = \square$ |                             |

**2.9.3 Standard Method :**

In this part, we will, discuss the commonly used method of division standard method of division.

**Example 1 :** Divide 245 by 2 and verify.

**Solution :**

$$\begin{array}{r}
 \begin{array}{r} \text{Divisor} \end{array} \begin{array}{r} \leftarrow 2 \end{array} \overline{) 245} \begin{array}{l} \leftarrow \text{Quotient} \\ \leftarrow \text{Dividend} \\ \leftarrow \text{Remainder} \end{array} \\
 \underline{- 2} \phantom{0} \phantom{4} \phantom{5} \\
 04 \phantom{5} \\
 \underline{- 4} \phantom{5} \\
 05 \\
 \underline{- 4} \\
 \underline{\phantom{0} 1}
 \end{array}$$

Verification :

$$\text{Dividend} = \text{Quotient} \times \text{divisor} + \text{remainder}$$

$$245 = 122 \times 2 + 1$$

$$\begin{array}{r}
 122 \\
 \times 2 \\
 \hline
 244 \\
 + 1 \\
 \hline
 245
 \end{array}$$

**Example 2 :** Divide 624 by 6 and verify.

**Solution :**

$$\begin{array}{r} 6 \overline{) 624} \quad (104 \\ - \underline{6} \downarrow \\ 02 \\ - \underline{0} \downarrow \\ 24 \\ - \underline{24} \\ \underline{00} \end{array}$$

Verification:

Dividend = Quotient  $\times$  divisor + remainder

$$624 = 104 \times 6 + 0$$

$$624 = 624 + 0$$

$$624 = 624$$

**Example 3 :** Divide 1282 by 8 and verify.

**Solution :**  $8 \overline{) 1282} \quad (160$

$$\begin{array}{r} - \underline{0} \downarrow \\ 12 \\ - \underline{8} \downarrow \\ 48 \\ - \underline{48} \downarrow \\ \underline{002} \\ - \underline{0} \\ \underline{2} \end{array}$$

Verification:

Dividend = Quotient  $\times$  divisor + remainder

$$1282 = 160 \times 8 + 2$$

$$1282 = 1280 + 2$$

$$1282 = 1282$$

**Example 4 :** Divide 3245 by 13 and verify.

**Solution :**  $13 \overline{) 3245} \quad (249$

$$\begin{array}{r} - \underline{26} \downarrow \\ 64 \\ - \underline{52} \downarrow \\ 125 \\ - \underline{117} \\ \underline{8} \end{array}$$

Verification:

Dividend = Quotient  $\times$  divisor + remainder

$$3245 = 249 \times 13 + 8$$

$$3245 = 3237 + 8$$

$$3245 = 3245$$

## Exercise 2.8

1. Fill in the boxes of Q.No. 1 and Q.No. 2 as directed :

(a)  $7 \times 6 = 42$

$42 \div 6 = 7$

$42 \div 7 = 6$

(b)  $9 \times 4 = 36$





(c)  $6 \times 8 = 48$



(d)  $10 \times 4 = 40$



2. (a)  $72 \div 8 = 9$

$9 \times 8 = 72$

$8 \times 9 = 72$

(b)  $35 \div 7 = 5$



(c)  $56 \div 8 = 7$



(d)  $150 \div 10 = 15$



(e)  $120 \div 10 = 10$



3. Divide and verify the solution :

(a)  $66 \div 6$

(b)  $431 \div 7$

(c)  $728 \div 8$

(d)  $648 \div 9$

(e)  $960 \div 5$

4. Solve the following :

(a)  $666 \div 6$

(b)  $655 \div 5$

(c)  $787 \div 7$

(d)  $877 \div 7$

(e)  $598 \div 6$

(f)  $566 \div 8$

(g)  $707 \div 7$

5. Solve the following :

(a)  $2150 \div 2$

(b)  $4050 \div 3$

(c)  $8048 \div 8$

(d)  $5106 \div 6$

(e)  $3043 \div 3$

(f)  $7890 \div 7$

(g)  $4050 \div 5$

6. Divide and verify the solution :

(a)  $96 \div 12$

(b)  $98 \div 14$

(c)  $78 \div 16$

(d)  $760 \div 19$

(e)  $550 \div 13$

(f)  $894 \div 24$

(g)  $913 \div 66$

(h)  $826 \div 34$

(i)  $7645 \div 12$

(j)  $7813 \div 13$

(k)  $5375 \div 25$

(l)  $6767 \div 33$

(m)  $9600 \div 50$

(n)  $9999 \div 33$

(o)  $9660 \div 60$

## 2.10 Statement Sums of Division:

So far we have discussed simple problems of division. Now we shall discuss about the problems related to division in our daily life.

**Example 1 :** A gardener has 720 marigold flower plants. He planted all the plants in 6 rows equally. How many plants are there in each row ?

**Solution :** Number of marigold flowers = 720

Number of rows for planting flowers = 6

Number of flowers in each row =  $720 \div 6$

$$\begin{array}{r} 6 \overline{) 720} (120 \\ - 6 \phantom{0} \phantom{0} \phantom{0} \\ \hline 12 \phantom{0} \phantom{0} \\ - 12 \phantom{0} \phantom{0} \\ \hline 0 \phantom{0} \phantom{0} \\ 0 \phantom{0} \\ \hline 0 \end{array}$$

**Answer :** Therefore, there will be 120 plants in each row.

**Example 2 :** A labourer earns ₹ 2450 in a week. What is his daily earning?

**Solution :** Earning of a labourer in one week = ₹ 2450

Number of days in one week = 7

One day earning of a labourer =  $2450 \div 7$

$$\begin{array}{r} 7 \overline{) 2450} (350 \\ - 21 \phantom{0} \phantom{0} \phantom{0} \\ \hline 35 \phantom{0} \phantom{0} \\ - 35 \phantom{0} \phantom{0} \\ \hline 0 \phantom{0} \phantom{0} \\ 0 \phantom{0} \\ \hline 0 \end{array}$$

**Answer :** Therefore, labourer earns ₹ 350 daily.



**Example 3 :** Product of two numbers is 168. If first number is 8, what will be the second number.

**Solution :** Product of two numbers = 168

$$\text{First number} = 8$$

$$\text{Second number} = 168 \div 8$$

$$\begin{array}{r} 8 \overline{) 168} \quad (21 \\ \underline{- 16} \quad \downarrow \\ 8 \\ \underline{- 8} \\ \underline{\quad 0} \end{array}$$

**Answer :** Therefore, the second number will be 21.

### Exercise 2.9

- In morning assembly 161 students stand in 7 rows equally. How many students stand in each row?
- I have 72 apples I have to put these in 3 baskets equally. How many apples each basket will contain?
- A farmer has produced 4250 kg wheat in his field. One bag is required to fill for 50 kg of wheat. How many such bags are required to fill 4250 kg wheat?
- By which number to multiply 25 so that product becomes 625?
- A gardener has 120 flowers. He has to make garland of 24 flowers. How many such garlands are made from 120 flowers?
- How many ₹ 50 notes are required to make ₹ 2000?
- I want to exchange my ₹ 500 note. How many notes of following denomination will I get ?
  - If all are ₹ 100 Notes .....
  - If all are ₹ 50 notes .....
  - If all are ₹ 10 notes .....
- A labourer picks up 20 bricks in 1 round. How many number of rounds are required to pick up 1000 bricks?



9. A railway ticket costs ₹ 24. Palak gave ₹ 576 to the station master. How many number of tickets did she get ?
10. Kashvi brought a toffees packet on her birthday. There were 175 toffees in this packet and there are 35 students in her class. How many toffees did each of them get ?

 **Multiple Choice Questions (MCQ)**

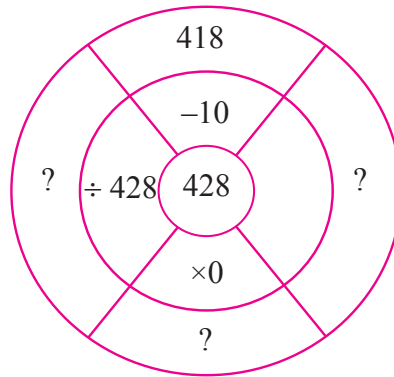
1.  $573 + 227 = \square$   
(a) 798                      (b) 799                      (c) 800                      (d) 801
2.  $\square + 336 = 868$   
(a) 632                      (b) 528                      (c) 532                      (d) 1204
3.  $700 - 125 = \square$   
(a) 475                      (b) 575                      (c) 675                      (d) 825
4.  $801 - \square = 602$   
(a) 201                      (b) 1403                      (c) 100                      (d) 199
5.  $53 \times 8 = 8 \times \square$   
(a) 3                      (b) 53                      (c) 40                      (d) 159
6.  $716 \times \square = 716$   
(a) 0                      (b) 1                      (c) 716                      (d) 2
7.  $573 \times 0 = \square$   
(a) 573                      (b) 1                      (c) 0                      (d) 57
8.  $\square \times 1 = 600$   
(a) 1                      (b) 200                      (c) 600                      (d) 300
9.  $7 \times 1000 = \square$   
(a) 7                      (b) 1000                      (c) 7000                      (d) 700
10.  $53 \times 30 = \square$   
(a) 159                      (b) 1590                      (c) 83                      (d) 1690

11.  $128 \div 16 = \square$   
(a) 9 (b) 10 (c) 12 (d) 8
12.  $126 \div 14 = 9$ , which is divisor?  
(a) 14 (b) 9 (c) 126 (d) 0
13.  $15 \times 12 + 8 = \square$   
(a) 168 (b) 198 (c) 178 (d) 188
14.  $1509 \div 1 = \square$   
(a) 1 (b) 1509 (c) 3 (d) 0
15. In a school there are 22 students in 1st, 25 students in 2nd, 23 students in 3rd, 27 students in 4th and 23 students in 5th class. Find out total number of students in the school.  
(a) 120 (b) 130 (c) 145 (d) 160
16. Which number must be added in 779 to get the smallest number of 4 digit?  
(a) 231 (b) 220 (c) 321 (d) 221
17. How many hours are there in the month of May?  
(a) 31 (b) 744 (c) 24 (d) 720
18. Find the difference between 4 digits greatest number the and smallest number by using digits 2, 0, 4 and 6.  
(a) 3747 (b) 6174 (c) 2046 (d) 4374
19. Find the product of 3 digits smallest number and 2 digits greatest number.  
(a) 9900 (b) 10,000 (c) 290 (d) 9700
20. After distributing 178 toffees among 15 children equally, find the number of toffees left.  
(a) 13 (b) 14 (c) 12 (d) 11
21.  $19 \times 300 = \square$   
(a) 57000 (b) 5700 (c) 2200 (d) 319
22.  $225 \times \square = 2250$   
(a) 1 (b) 10 (c) 100 (d) 0

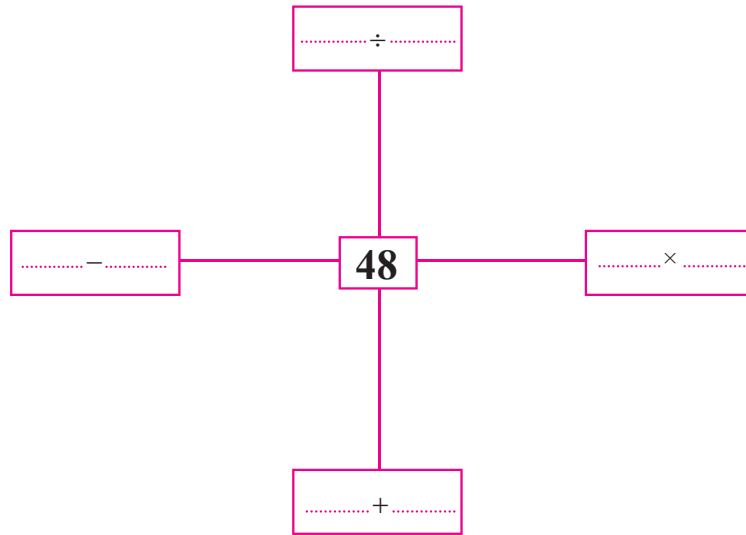


### 2.17 Brain teaser

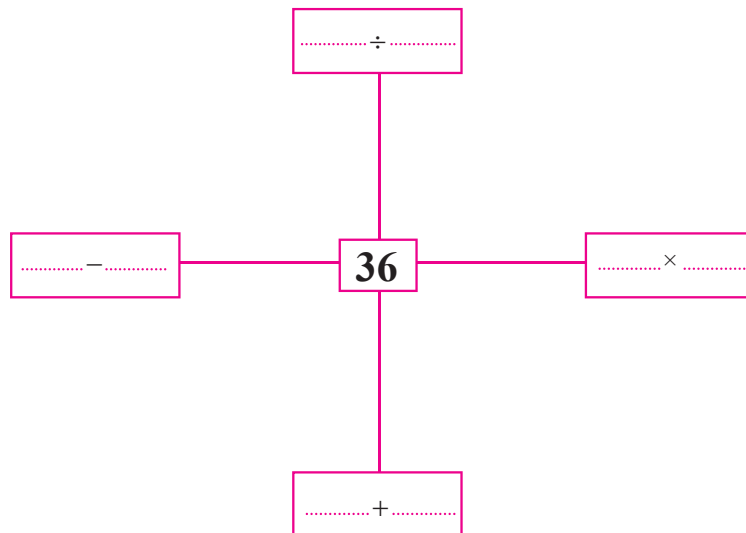
1. Fill in the blank boxes replacing sign ‘?’



2.



3.



## Learn Tables

| Table of 2         | Table of 3         | Table of 4         | Table of 5         |
|--------------------|--------------------|--------------------|--------------------|
| $2 \times 1 = 2$   | $3 \times 1 = 3$   | $4 \times 1 = 4$   | $5 \times 1 = 5$   |
| $2 \times 2 = 4$   | $3 \times 2 = 6$   | $4 \times 2 = 8$   | $5 \times 2 = 10$  |
| $2 \times 3 = 6$   | $3 \times 3 = 9$   | $4 \times 3 = 12$  | $5 \times 3 = 15$  |
| $2 \times 4 = 8$   | $3 \times 4 = 12$  | $4 \times 4 = 16$  | $5 \times 4 = 20$  |
| $2 \times 5 = 10$  | $3 \times 5 = 15$  | $4 \times 5 = 20$  | $5 \times 5 = 25$  |
| $2 \times 6 = 12$  | $3 \times 6 = 18$  | $4 \times 6 = 24$  | $5 \times 6 = 30$  |
| $2 \times 7 = 14$  | $3 \times 7 = 21$  | $4 \times 7 = 28$  | $5 \times 7 = 35$  |
| $2 \times 8 = 16$  | $3 \times 8 = 24$  | $4 \times 8 = 32$  | $5 \times 8 = 40$  |
| $2 \times 9 = 18$  | $3 \times 9 = 27$  | $4 \times 9 = 36$  | $5 \times 9 = 45$  |
| $2 \times 10 = 20$ | $3 \times 10 = 30$ | $4 \times 10 = 40$ | $5 \times 10 = 50$ |

| Table of 6         | Table of 7         | Table of 8         | Table of 9         | Table of 10          |
|--------------------|--------------------|--------------------|--------------------|----------------------|
| $6 \times 1 = 6$   | $7 \times 1 = 7$   | $8 \times 1 = 8$   | $9 \times 1 = 9$   | $10 \times 1 = 10$   |
| $6 \times 2 = 12$  | $7 \times 2 = 14$  | $8 \times 2 = 16$  | $9 \times 2 = 18$  | $10 \times 2 = 20$   |
| $6 \times 3 = 18$  | $7 \times 3 = 21$  | $8 \times 3 = 24$  | $9 \times 3 = 27$  | $10 \times 3 = 30$   |
| $6 \times 4 = 24$  | $7 \times 4 = 28$  | $8 \times 4 = 32$  | $9 \times 4 = 36$  | $10 \times 4 = 40$   |
| $6 \times 5 = 30$  | $7 \times 5 = 35$  | $8 \times 5 = 40$  | $9 \times 5 = 45$  | $10 \times 5 = 50$   |
| $6 \times 6 = 36$  | $7 \times 6 = 42$  | $8 \times 6 = 48$  | $9 \times 6 = 54$  | $10 \times 6 = 60$   |
| $6 \times 7 = 42$  | $7 \times 7 = 49$  | $8 \times 7 = 56$  | $9 \times 7 = 63$  | $10 \times 7 = 70$   |
| $6 \times 8 = 48$  | $7 \times 8 = 56$  | $8 \times 8 = 64$  | $9 \times 8 = 72$  | $10 \times 8 = 80$   |
| $6 \times 9 = 54$  | $7 \times 9 = 63$  | $8 \times 9 = 72$  | $9 \times 9 = 81$  | $10 \times 9 = 90$   |
| $6 \times 10 = 60$ | $7 \times 10 = 70$ | $8 \times 10 = 80$ | $9 \times 10 = 90$ | $10 \times 10 = 100$ |



### Learning Outcomes

- Children are able to perform four basic operations (Addition, Subtraction, Multiplication and Division) on numbers upto 10000.
- Children are able to understand transactions, banking, buying & selling in daily life.
- Children are able to perform basic operations, perform activities related to weight, distance, and money transactions etc. in daily life.
- Children are able to multiply and divide instead of repeated addition and repeated subtraction and respectively to remove hurdles in daily life.
- Children are able to understand different methods of multiplication and division of two digits numbers.
- Children are ready to take competitive exams.

### Answer Key

#### Revision Exercise 2

- |            |         |           |         |
|------------|---------|-----------|---------|
| 1. (a) 749 | (b) 808 | (c) 213   | (d) 396 |
| 2. (a) 15  | (b) 18  | (c) 13    | (d) 0   |
| (e) 32     | (f) 1   | (g) 7     | (h) 92  |
| (i) 6      | (j) 16  | (k) 0     | (l) 54  |
| (m) 0      | (n) 1   |           |         |
| 3. (a) 48  | (b) 191 | 4. (a) 31 | (b) 205 |
| 5. (a) 928 | (b) 364 | 6. (a) 4  | (b) 46  |

#### Exercise 2.1

Question no 1-4 are based on number line

- |             |          |          |          |          |
|-------------|----------|----------|----------|----------|
| 5. (a) 576  | (b) 478  | (c) 5495 | (d) 8789 |          |
| (e) 765     | (f) 668  | (g) 8611 | (h) 6662 |          |
| 6. (a) 1353 | (b) 810  | (c) 8700 | (d) 9784 |          |
| (e) 1538    | (f) 923  | (g) 9983 | (h) 9044 |          |
| (i) 649     | (j) 2151 | (g) 6284 | (h) 5766 |          |
| 7. (a) 5877 | (b) 4946 | (c) 5289 | (d) 3129 | (e) 5323 |



### Exercise 2.2

1. (a) 
$$\begin{array}{r} 7\ 6\ 5 \\ +\ 2\ 1\ 3 \\ \hline 9\ 7\ 8 \end{array}$$
 (b) 
$$\begin{array}{r} 7\ 6\ 5 \\ +\ 2\ 3\ 4 \\ \hline 9\ 9\ 9 \end{array}$$
 (c) 
$$\begin{array}{r} 2\ 4\ 3\ 7 \\ +\ 3\ 9\ 1\ 7 \\ +\ 2\ 1\ 5\ 4 \\ \hline 8\ 5\ 0\ 8 \end{array}$$
- (d) 
$$\begin{array}{r} 2\ 6\ 8\ 3 \\ +\ 1\ 3\ 7\ 5 \\ +\ 5\ 7\ 6\ 4 \\ \hline 9\ 8\ 2\ 2 \end{array}$$
 (e) 
$$\begin{array}{r} 9\ 8\ 7 \\ -\ 3\ 4\ 2 \\ \hline 6\ 4\ 5 \end{array}$$
 (f) 
$$\begin{array}{r} 9\ 8\ 7 \\ -\ 1\ 7\ 2 \\ \hline 8\ 1\ 5 \end{array}$$
- (g) 
$$\begin{array}{r} 7\ 2\ 8\ 1 \\ -\ 4\ 1\ 2\ 3 \\ \hline 3\ 1\ 5\ 8 \end{array}$$
 (h) 
$$\begin{array}{r} 7\ 8\ 9\ 2 \\ -\ 5\ 1\ 3\ 5 \\ \hline 2\ 7\ 5\ 7 \end{array}$$
2. (a) 54 (b) 39 (c) 500 (d) 500 (e) 4467  
 (f) 3567 (g) 302 (h) 7105 (i) 3005 (j) 2748

### Exercise 2.3

1. (a) 3290 (b) 3127
2. ₹ 3742      3. ₹ 5375      4. ₹ 6967
5. 6889      6. 1431      7. (a) 4570      (b) 3262
8. (a) ₹ 7650      (b) ₹ 9245      9. 7641, 1467, 9108, 6174
10. 1999      11. 730      12. 752
13. ₹ 645      14. ₹ 490      15. ₹ 215
16. 122 km

### Exercise 2.4

1. (a) 164 (b) 900 (c) 9790 (d) 9684  
 (e) 6992 (f) 9860 (g) 8850 (h) 9278  
 (i) 9414 (j) 9432 (k) 9940 (l) 10000  
 (m) 9393 (n) 7225 (o) 8472 (p) 8624
2. (a) 364 (b) 252 (c) 729 (d) 615  
 (e) 1230

### Exercise 2.5

1. (a) 4 (b) 50 (c) 600 (d) 0  
 (e) 100 (f) 16 (g) 0 (h) 8  
 (i) 40 (j) 700 (k) 9000 (l) 10000  
 (m) 10 (n) 76 (o) 1

### Exercise 2.6

1. ₹ 135 2. 1425 3. 5372 4. ₹ 9360  
 5. 132 6. 8640 7. (a) ₹ 310 (b) ₹ 415  
 8. ₹ 2726 9. 448 kilometer 10. 1000

### Exercise 2.7

1. 2 2. 11 3. 6 4. 13  
 5. 6 6. 6 7. 4 8. 0  
 9. 10 10. 12 11. 6 12. 15  
 13. 14 14. 10. 15. 9

### Exercise 2.8

1. (a)  $42 \div 6 = 7, 42 \div 7 = 6$   
 (b)  $36 \div 9 = 4, 36 \div 4 = 9$   
 (c)  $48 \div 6 = 8, 48 \div 8 = 6$   
 (d)  $40 \div 10 = 4, 40 \div 4 = 10$   
 2. (a)  $9 \times 8 = 72, 8 \times 9 = 72$   
 (b)  $5 \times 7 = 35, 7 \times 5 = 35$   
 (c)  $7 \times 8 = 56, 8 \times 7 = 56$   
 (d)  $10 \times 15 = 150, 15 \times 10 = 150$   
 (e)  $10 \times 12 = 120, 12 \times 10 = 120$   
 3. (a) Quotient = 11 (b) Quotient = 61, Remainder = 4  
 (c) Quotient = 91 (d) Quotient = 72,  
 (e) Quotient = 192



4. (a) Quotient = 111 (b) Quotient = 131  
 (c) Quotient = 112, Remainder = 3 (d) Quotient = 125, Remainder = 2  
 (e) Quotient = 99, Remainder = 4 (f) Quotient = 70, Remainder = 6  
 (g) Quotient = 101
5. (a) Quotient = 1075 (b) Quotient = 1350  
 (c) Quotient = 1006 (d) Quotient = 851  
 (e) Quotient = 1014, Remainder = 1 (f) Quotient = 1127, Remainder = 1  
 (g) Quotient = 810
6. (a) Quotient = 8 (b) Quotient = 7  
 (c) Quotient = 4, Remainder = 14 (d) Quotient = 40  
 (e) Quotient = 42, Remainder = 4 (f) Quotient = 37, Remainder = 6  
 (g) Quotient = 13, Remainder = 55 (h) Quotient = 24, Remainder = 10  
 (i) Quotient = 637, Remainder = 1 (j) Quotient = 601  
 (k) Quotient = 215 (l) Quotient = 205  
 (m) Quotient = 192 (n) Quotient = 303  
 (o) Quotient = 161

### Exercise 2.9

1. 23                      2. 24                      3. 85  
 4. 25                      5. 5                        6. 40  
 7. (a) 5 (b) 10 (c) 50  
 8. 50                      9. 24                      10. 5

### Multiple Choice Questions

1. c            2. c            3. b            4. d            5. b  
 6. b            7. c            8. c            9. c            10. b  
 11. d           12. a           13. d           14. b           15. a  
 16. d           17. b           18. d           19. a           20. a  
 21. b           22. b



# FRACTIONAL NUMBER

## OBJECTIVES :- To enable the students :

1. To give information about fractions.
2. To give knowledge about half, one third, one fourth, two thirds and three fourths.
3. To tell the importance of fractions in daily life
4. To give knowledge about equal fractions

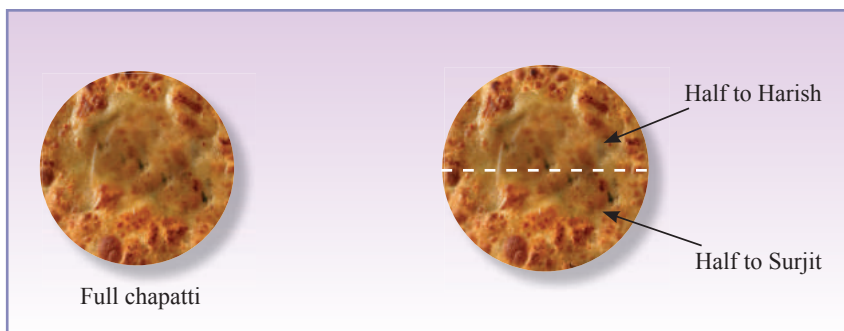
### 3.1 Introduction :

Earlier teacher has discussed only about Natural numbers and Whole numbers with students. In this chapter teacher will move further from whole numbers and tell the students about fractional numbers. Students directly or indirectly come across fractions like half, one fourth, full or whole in our daily life because children are habitual of sharing their eatables among friends. So the teacher will introduce the topic through the following activity.

### Activity

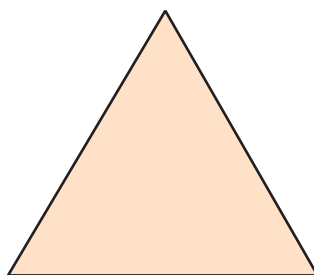
Surjit has a chapatti in his tiffin box. Surjit was about to eat his chapatti when his friend Harish came, Harish had nothing to eat and he was very hungry. The teacher would ask the students what would Surjit do? The students will answer that Surjit will give half of his chapatti to Harish. Now the teacher will draw a shape of chapatti on black board and shade its half part after dividing it into two equal parts.



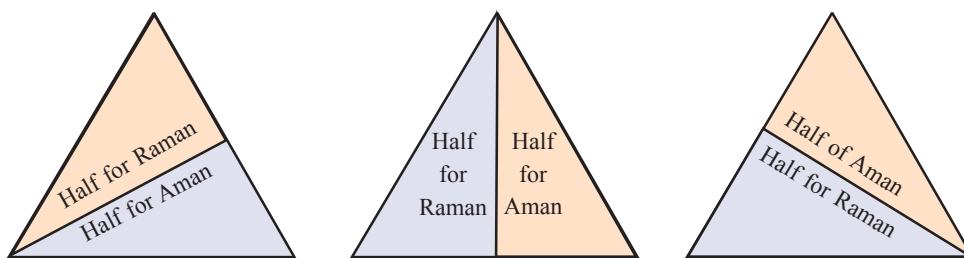


## Activity

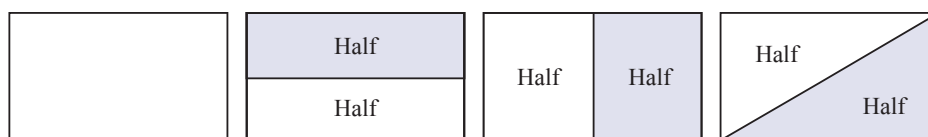
During discussion with the students the teacher will tell that Aman and Raman are twin sisters. They both ate equal amount of food. They had a chocolate box having chocolates of different sizes. Aman took out a chocolate which was of the following shape. The teacher will draw the shape of the chocolate on the blackboard.



Now teacher will ask the students how Raman and Aman will divide this chocolate equally. The students will try to tell and the teacher will help them.



Now the teacher will draw one more shape and ask the students to divide it into two equal parts.

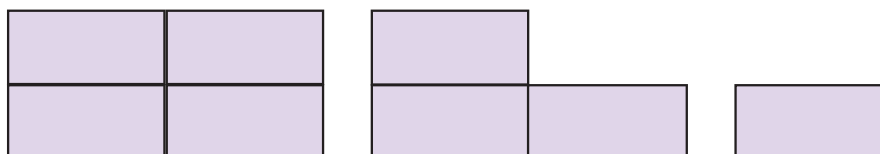


The students will learn to divide the objects/shapes into two equal parts through this activity. The teacher will here explain the meaning of half as one part of two equal parts.

Numerically it will be shown as  $\frac{1}{2}$ .

### Activity

Raju has a chocolate which is of the following shape.



Raju distributed this chocolate equally among his 4 friends. Now teacher will tell that when we divide a whole thing into 4 equal parts, every part is called one fourth part of the thing. It is written as :

$$\frac{1}{4}$$

In the above example chocolate has been divided into 4 equal parts and every friend has got one part.

The number of equal parts in which the whole is divided, is taken as denominator and number of some specific equal parts is taken as Numerator. In the fraction so formed, the numerator of fraction is 1 and denominator is 4.

$$\frac{1}{4} \begin{array}{l} \longrightarrow \text{Specific equal parts} \\ \longrightarrow \text{Total equal parts} \end{array} \begin{array}{l} \longrightarrow \text{numerator} \\ \longrightarrow \text{denominator} \end{array}$$

#### Hint For Teacher

- Teacher while talking about the fractional number with student, tells them  $\frac{1}{4}$  is generally known as one fourth.

Meaning of  $\frac{1}{4}$  is 1 equal part of four equal parts. (In one fourth 1 is numerator and 4 is denominator).

**Example 1 :** Colour  $\frac{1}{3}$  part of given shape :



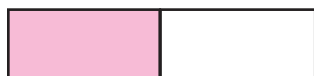
**Solution :**



**Example 2 :** Colour  $\frac{1}{2}$  part of given shape :



**Solution :**



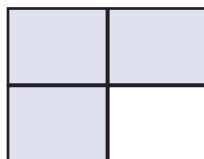
**Example 3 :** Write the given fractions in words :

- (a)  $\frac{1}{4}$       (b)  $\frac{1}{3}$       (c)  $\frac{1}{2}$       (d)  $\frac{3}{4}$

**Solution :**

| Fraction      | In words      |                        |
|---------------|---------------|------------------------|
| $\frac{1}{4}$ | One fourth    | 1 out of 4 equal parts |
| $\frac{1}{3}$ | One third     | 1 out of 3 equal parts |
| $\frac{1}{2}$ | Half          | 1 out of 2 equal parts |
| $\frac{3}{4}$ | Three fourths | 3 out of 4 equal parts |

**Example 3 :** Write the fraction of coloured portion :



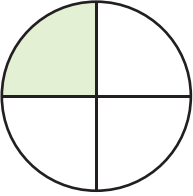
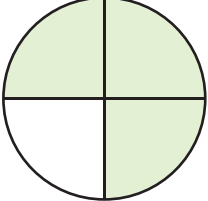
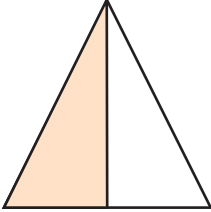
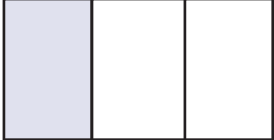
**Solution :** Total equal parts (denominator) = 4

Number of coloured parts (numerator) = 3

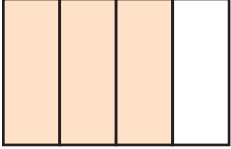


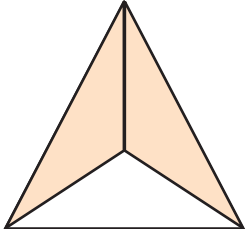


Therefore, fraction =  $\frac{\text{denominator}}{\text{numerator}} = \frac{3}{4}$

**Exercise 3.1**

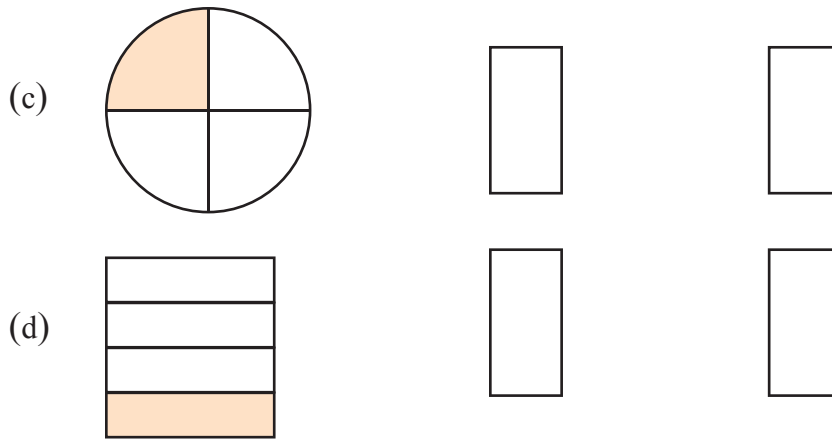
1. Match the fraction according to coloured portion.

|     |   |               |
|-----|---|---------------|
| (a) |    | $\frac{3}{4}$ |
| (b) |    | $\frac{1}{2}$ |
| (c) |    | $\frac{1}{3}$ |
| (d) |  | $\frac{1}{4}$ |


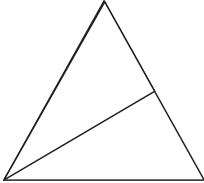
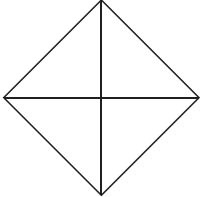
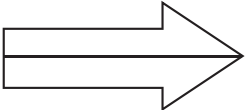
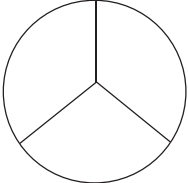
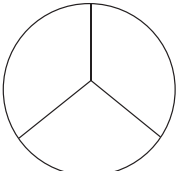
2. Write the fraction of coloured as well as blank portion in the given space :

|     | Figure  | fraction of coloured portion  | fraction of blank portion   |
|-----|---|---|---|
| (a) |  |  |  |
| (b) |  |  |  |

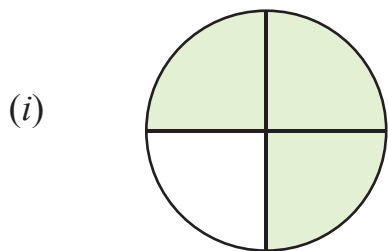




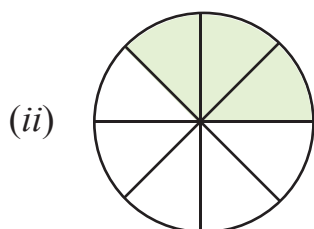
**3. Colour the figure according to the given fraction :**

|     | <b>Fraction</b> | <b>Figure</b>  |
|-----|-----------------|--|
| (a) | $\frac{1}{4}$   |    |
| (b) | $\frac{1}{2}$   |   |
| (c) | $\frac{3}{4}$   |  |
| (d) | $\frac{1}{2}$   |  |
| (e) | $\frac{2}{3}$   |  |
| (f) | $\frac{1}{3}$   |  |

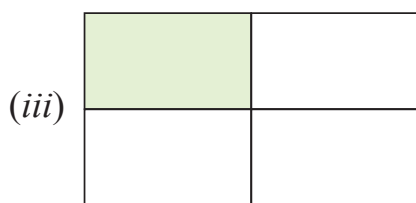
4. Mark (✓) on the correct fraction of the coloured portion of the figure :



- (a)  $\frac{1}{4}$       (b)  $\frac{3}{4}$       (c)  $\frac{4}{4}$       (d)  $\frac{1}{2}$



- (a)  $\frac{5}{8}$       (b)  $\frac{1}{8}$       (c)  $\frac{3}{4}$       (d)  $\frac{3}{8}$



- (a)  $\frac{3}{4}$       (b)  $\frac{2}{4}$       (c)  $\frac{1}{4}$       (d)  $\frac{4}{4}$

5. Write the given fraction in words :

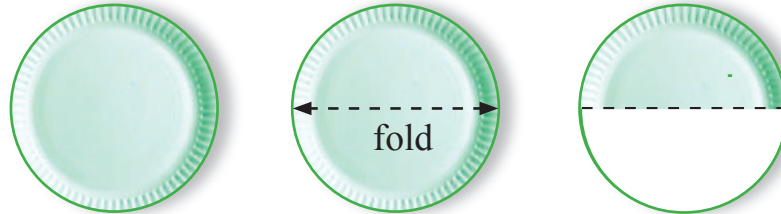
- (a)  $\frac{1}{2}$       (b)  $\frac{1}{4}$       (c)  $\frac{1}{3}$       (d)  $\frac{2}{3}$       (e)  $\frac{3}{4}$       (f)  $\frac{1}{10}$

6. Write numerator and denominator of the given fractions :

- (a)  $\frac{2}{3}$       (b)  $\frac{1}{2}$       (c)  $\frac{1}{4}$       (d)  $\frac{3}{4}$

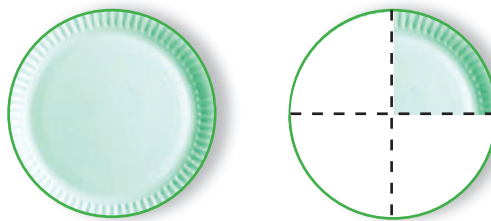
 **Practical Activity**

Take a paper plate and fold it as shown in the picture.



Now unfold it and shade it's one part and write its fraction.

Now take another paper plate and fold it twice as shown in the picture. Open the fold of the plate and colour its one part and write the fraction of coloured part.

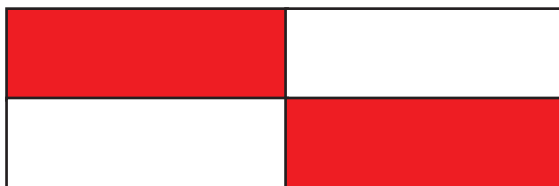


### 3.2 Equivalent Fraction

Raju's father sells carpets. He brings some mats of same size but having different patterns as shown below :



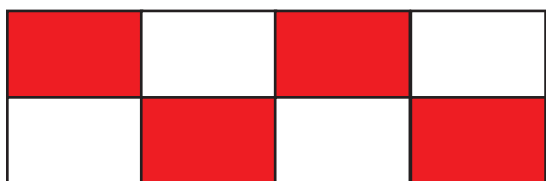
The design of the first carpet is such that it is divided into two equal parts. One part is red therefore fraction of red part is  $\frac{1}{2}$ .



The design of the second carpet is such that it is divided into 4 equal parts. Two parts are red in colour, therefore fraction of red part is  $\frac{2}{4}$ .



The design of the third carpet is such that it is divided in six equal parts and three parts have red colour, therefore the fraction of red part is  $\frac{3}{6}$ .



The design of the fourth carpet is such that it is divided into eight equal parts and four parts are red in colour, therefore fraction of red part is  $\frac{4}{8}$ .

But we can see that equal part of every carpet has been coloured red therefore  $\frac{1}{2}$ ,  $\frac{2}{4}$ ,  $\frac{3}{6}$ ,  $\frac{4}{8}$  represent equal portion of carpet.

The fractions which represent equal parts of a whole or of a collection are called equivalent or equal fractions.

Therefore :

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$$

**Example 1 :** Solve :  $\frac{2}{5} = \frac{\boxed{6}}{15}$

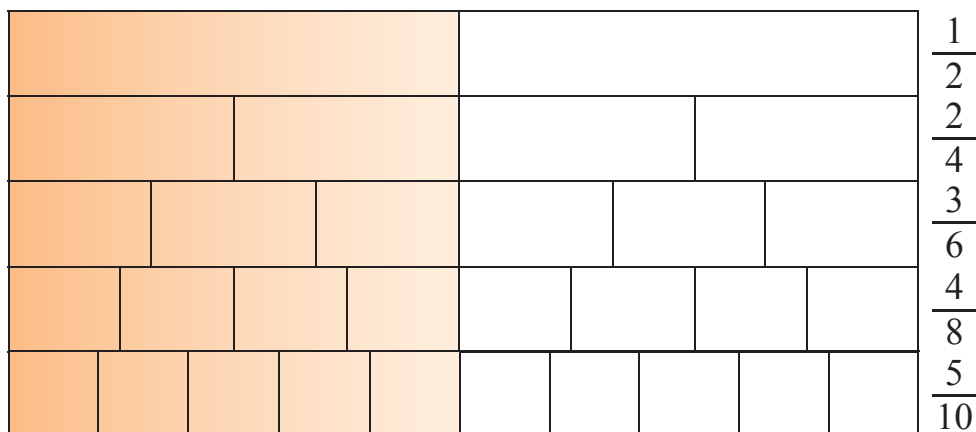
**Solution :** To make equivalent fraction of  $\frac{2}{5}$  having denominator 15, the denominator 15 will be divided by 5 and the answer will be 3. 3 will be multiplied with numerator 2 of fraction  $\frac{2}{5}$ . Now we will get 6 so the required number is 6.

$$\frac{2}{5} = \frac{2 \times 3}{5 \times 3} = \frac{\boxed{6}}{15}$$

\* To make equivalent of a fraction, multiples of denominator and numerator are taken.

For example :

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$$



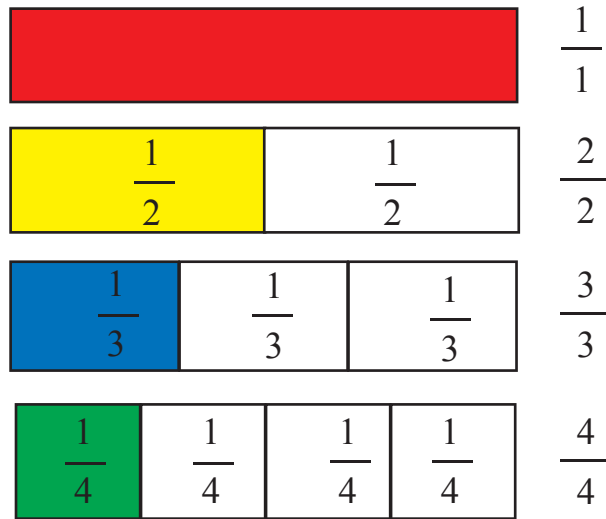
$$\frac{1 \times 2}{2 \times 2} = \frac{2}{4} ; \frac{1 \times 3}{2 \times 3} = \frac{3}{6} ; \frac{1 \times 4}{2 \times 4} = \frac{4}{8} ; \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

### Let us prepare fractional chart

Take four coloured strips (red, yellow, blue, green) and cut them into equal size.

1. Paste the red strip on the chart
2. Divide the yellow strip into two equal parts by folding it and paste it on chart below red strip. Now the fraction of one part is  $\frac{1}{2}$ . Both parts combine to make fraction  $\frac{2}{2}$ . Yellow strip is equal to red strip
3. Fold the blue strip in such a way that it is divided into 3 equal parts and paste it on the chart below yellow strip. Now the fraction of one part is  $\frac{1}{3}$ . All three parts combined together to make  $\frac{3}{3}$ . Blue strip is equal to yellow and red strip.

4. Fold the green strip in such a way that it is divided into 4 equal parts and paste on the chart below blue strip. Now the fraction of one part is  $\frac{1}{4}$ . All four parts combined together to make  $\frac{4}{4}$ . Green strip is equal to blue coloured strip, yellow and red coloured strip.



It is clear that  $\frac{2}{2} = \frac{3}{3} = \frac{4}{4} = 1$

### Exercise 3.2

1. Colour the given figures in a such a way that they show equal fraction and also write their fraction in the given box :

(a) (b)   
 Below the first rectangle is a box containing  $\frac{1}{3}$ . Below the second square is an empty box. Below the first circle is a box containing  $\frac{3}{4}$ . Below the second circle is an empty box.

2. Write next five equal fractions of the given each fraction :

(a)  $\frac{1}{2}$       (b)  $\frac{3}{4}$       (c)  $\frac{1}{3}$       (d)  $\frac{2}{5}$

3. Fill in the blanks to make equal fractions to the given each fraction :

(a)  $\frac{3}{5} = \frac{\boxed{\phantom{000}}}{15}$

(b)  $\frac{5}{6} = \frac{\boxed{\phantom{000}}}{24}$

(c)  $\frac{2}{3} = \frac{\boxed{\phantom{000}}}{12}$

(d)  $\frac{7}{10} = \frac{\boxed{\phantom{000}}}{100}$

(e)  $\frac{7}{12} = \frac{\boxed{\phantom{000}}}{84}$

(f)  $\frac{1}{2} = \frac{7}{\boxed{\phantom{000}}}$

(f)  $\frac{4}{7} = \frac{8}{\boxed{\phantom{000}}}$

(h)  $\frac{3}{5} = \frac{24}{\boxed{\phantom{000}}}$

### Learning Outcomes

- Children have got knowledge about fractions.
- Children are able to make equal fractions.
- They are able to make use of half, one third, one fourth, two thirds and three fourths in their daily life.

## Answer Key

### Exercise 3.1

2. (a)  $\frac{3}{4}, \frac{1}{4}$  (b)  $\frac{2}{3}, \frac{1}{3}$  (c)  $\frac{1}{4}, \frac{3}{4}$  (d)  $\frac{1}{4}, \frac{3}{4}$

4. (i) (a) (ii) (b) (iii) (c)

5. (a) half part (b) one fourth part (c) one third part  
(d) two thirds part (e) three fourth part (f) one tenth part

6. (a) numerator = 2, denominator = 3  
(b) numerator = 1, denominator = 2  
(c) numerator = 1, denominator = 4  
(d) numerator = 3, denominator = 4

### Exercise 3.2

3. (a)  $\frac{9}{15}$  (b)  $\frac{20}{24}$  (c)  $\frac{8}{12}$  (d)  $\frac{70}{100}$

(e)  $\frac{49}{84}$  (f)  $\frac{7}{14}$  (g)  $\frac{8}{14}$  (h)  $\frac{24}{40}$





## MONEY (CURRENCY)

### OBJECTIVES :-

1. Teacher will introduce the currency notes and coins to make the students, to convert rupees into paise by artificial currency notes.
2. To develop understanding for monetary transactions.
3. To give knowledge of addition and subtraction of money with activities.
4. To give knowledge of unitary and multiple values.



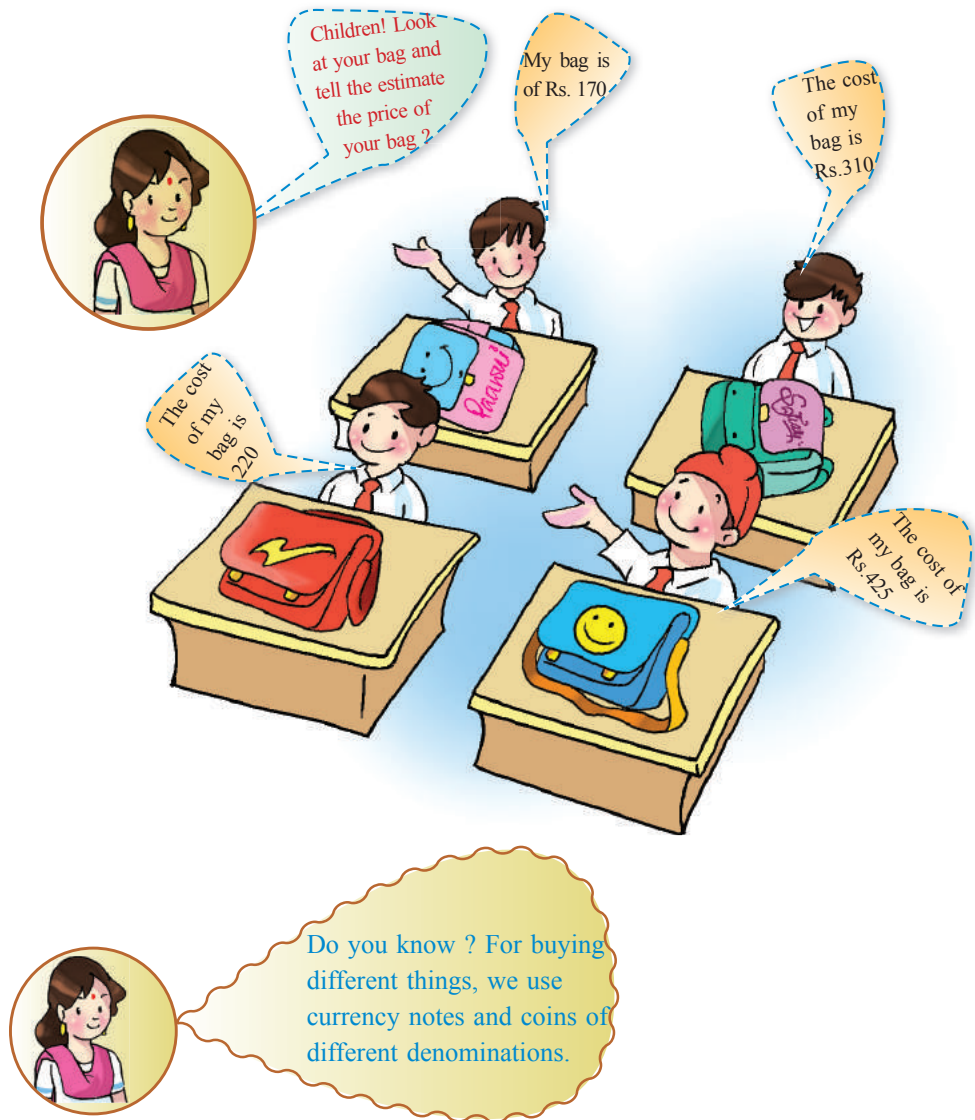
### 1. Fill in the blanks :

- (i) There are -----paise in a rupee.
- (ii) There are----- 50 paise coins in a rupee.
- (iii) To write one rupee -----sign is used.
- (iv) We will get -----Five rupee coins for a 10 rupee note.
- (v) A 20 rupee note = .....5 rupee notes.
- (vi) A 50 rupee note = .....10 rupee notes.





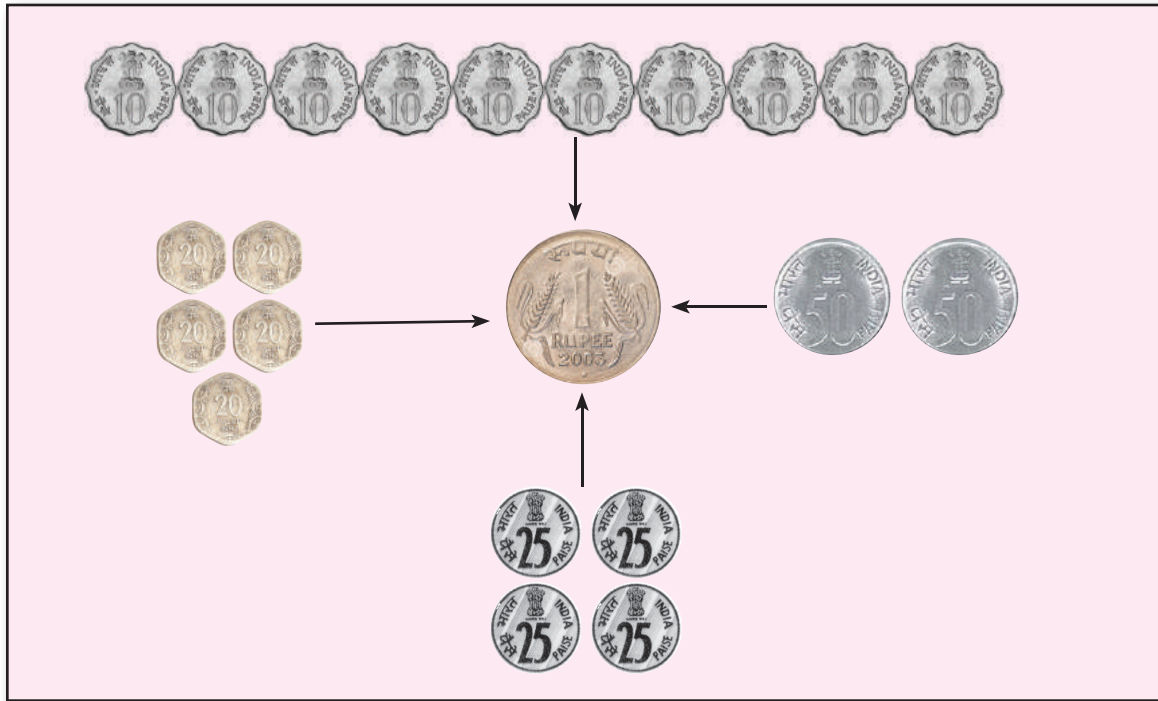
### 4.1 Introducing currency notes and coins



Commonly used notes and coins

## 4.2 Convert rupees into paise

100 paise = 1 rupee



Coins worth 10 p, 20p and 25p are banned by Indian Govt. These are no longer in use now,

### Activity

Make notes and coins from cardboard and paper and learn to convert rupees into paise



Children let us make coins and notes from cardboard and paper

All the children make notes and coins. The teacher will carry on the activity.



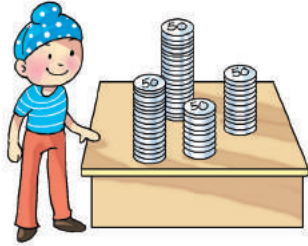
Now count 2 rupee notes, 5 rupee notes, 10 rupee notes and 100 rupee notes separately

Mam ,I have separated notes.



**Teacher** - The teacher will tell them that you will learn to convert Rupees into paise in a play way game.

In this game a child will become a cashier and put his heap of coins of 50 paise on the table. Rest of the children have notes and they will go to the cashier to get the notes converted into coins



Give me coins, worth of Rupees 2

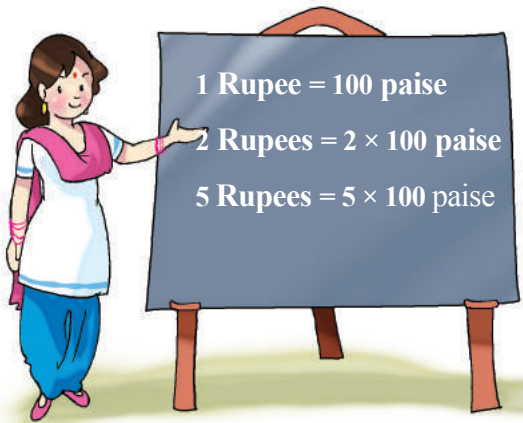
For coin of 1 rupee. Give me coins of 50 paise

Have two 50 paise coins! for a Rupees

Two 50 paise coins! means 100 paise






Take four 50 paise coins for Rs. 2

Four 50 paise coins! Means 200 paise



## Exercise 4.1

Draw 50 paise coins for given notes/coins :

|   |   |  |
|---|---|--|
|  | = |  |
|  | = |  |
|  | = |  |
|  | = |  |
|  | = |  |

Draw notes/coins, converting 50 paise into Rupees.

|   |   |  |
|---|---|--|
|  | = |  |
|---|---|--|

|   |   |  |
|---|---|--|
|  | = |  |
|---|---|--|

|   |   |  |
|---|---|--|
|  | = |  |
|---|---|--|

### 4.3. Addition and subtraction of money

In our daily life, we use currency notes and coins for selling and buying things. We need money to buy things in daily life. Therefore the knowledge of addition and subtraction of money is a routine matter. Children should know it.

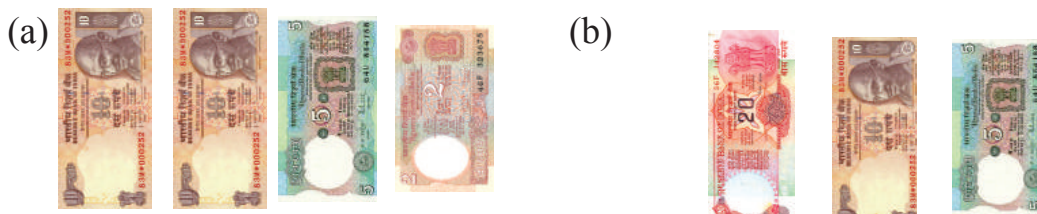
## Activity

Today Rajbir was showing his new pen ,copy and pencil to his friends in his class. He was looking happy. The teacher notices it and has discussion as follow :

- Teacher – Rajbir! what are you showing to your friends?
- Rajbir – Sir ,today I went to a shop and bought a pencil ,a copy and a pen. I am showing all these to my friends.
- Teacher – Tell me what is the cost of the pen, the pencil and the copy.
- Rajbir – Sir cost of the pen is Rs.20, pencil Rs.4 and copy Rs. 35
- Teacher – How much money did you pay for all these things?
- Rajbir – (Adds)  $Rs.20+Rs.4+Rs.35=Rs.59$
- Teacher – How much money did you have?
- Rajbir – Sir I had Rs. 100
- Teacher – How many rupees did you get back from the shopkeeper?
- Rajbir – sir, shopkeeper returned Rs.41 to me
- Teacher – Rs.59 is subtracted by the shopkeeper from Rs. 100, and he returned Rs 41.

Today we will learn how to add or subtract Money.

### Example 1 : Add the amount of the following notes:





$$\begin{array}{r} ₹ 10 \\ ₹ 10 \\ ₹ 5 \\ ₹ 2 \\ \hline ₹ 27 \end{array}$$

$$\begin{array}{r} ₹ 20 \\ ₹ 10 \\ ₹ 5 \\ \hline ₹ 35 \end{array}$$

### 4.3.1 Column method of addition and subtraction of money

As we add and subtract the numbers in column method similarly we can add and subtract money. For examples

**Example 2 :-** Add ₹ 224 and ₹ 115.

**Solution:**

$$\begin{array}{r} ₹ 2 2 4 \\ + ₹ 1 1 5 \\ \hline ₹ 3 3 9 \end{array}$$

**Example 3 :-** Add ₹ 318 and ₹ 216.

**Solution :**

$$\begin{array}{r} ₹ 3 1 8 \\ + ₹ 2 1 6 \\ \hline ₹ 5 3 4 \end{array}$$

**Example 4 :-** Subtract ₹ 135 from ₹ 247.

**Solution :**

$$\begin{array}{r} ₹ 2 4 7 \\ - ₹ 1 3 5 \\ \hline ₹ 1 1 2 \end{array}$$

**Example 5 :-** Subtract ₹ 190 from ₹ 360.

**Solution :**

$$\begin{array}{r} ₹ 3 6 0 \\ - ₹ 1 9 0 \\ \hline ₹ 1 7 0 \end{array}$$



## Exercise 4.2

### 1. Add the amount of following currency notes

|     |  |   |
|-----|--|---|
| (a) |     | ₹ <input style="width: 50px; height: 20px;" type="text"/> |
| (b) |     | <input style="width: 50px; height: 20px;" type="text"/>   |
| (c) |     | <input style="width: 50px; height: 20px;" type="text"/>   |
| (d) |    | <input style="width: 50px; height: 20px;" type="text"/>   |
| (e) |  | <input style="width: 50px; height: 20px;" type="text"/>   |

### 2. Find the sum of following amounts :

- (a) ₹ 200, ₹ 50, ₹ 20
- (b) ₹ 350, ₹ 165, ₹ 75
- (c) ₹ 470, ₹ 105, ₹ 55
- (d) ₹ 250, ₹ 90, ₹ 110
- (e) ₹ 200, ₹ 160, ₹ 50

3. Find the difference (subtract) of following amounts :

- (a) ₹ 200 and ₹ 150
- (b) ₹ 450 and ₹ 200
- (c) ₹ 500 and ₹ 270
- (d) ₹ 120 and ₹ 75
- (e) ₹ 300 and ₹ 125

4. Put (✓) on the currency note or coins which are required for buying given things



1234567  
Geometry  
₹ 105








₹ 140









₹ 257










₹ 415







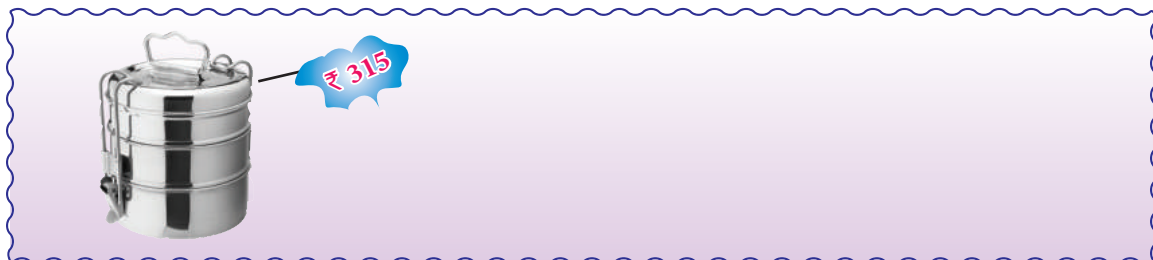
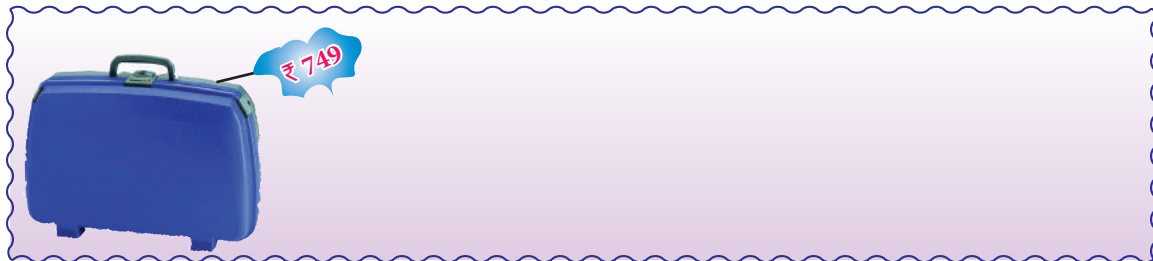
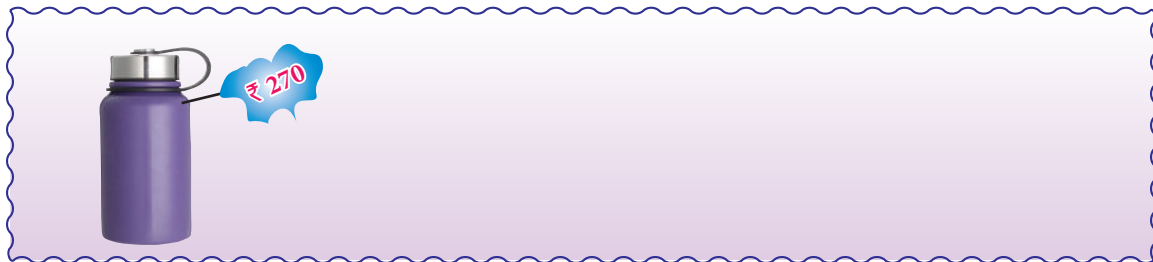









5. Draw required currency notes and coins for buying things as under



### 4.4 Addition of money (Statement problems)

For selling and buying things we use money in daily life. In the following statement problems we shall learn addition of the money

**Example A :** Avneet bought a toy tractor worth Rs.238.90 and a toy trolley worth Rs.145.20 from Fathegarh Sahib. What amount did he give to the shopkeeper?

| Cost of a toy tractor =     | = | <table style="border-collapse: collapse; text-align: center;"> <tr><th colspan="3">Rupees</th><th colspan="2">Paise</th></tr> <tr><td style="border: 1px solid black; width: 20px;">2</td><td style="border: 1px solid black; width: 20px;">3</td><td style="border: 1px solid black; width: 20px;">8</td><td style="border: 1px solid black; width: 20px;">9</td><td style="border: 1px solid black; width: 20px;">0</td></tr> </table> | Rupees |   |   | Paise |   | 2 | 3 | 8 | 9 | 0 |
|-----------------------------|---|--|--------|---|---|-------|---|---|---|---|---|---|
| Rupees                      |   |  | Paise  |   |   |       |   |   |   |   |   |   |
| 2                           | 3 | 8  | 9      | 0 |   |       |   |   |   |   |   |   |
| Cost of a toy trolley =     | = | <table style="border-collapse: collapse; text-align: center;"> <tr><td style="border: 1px solid black; width: 20px;">1</td><td style="border: 1px solid black; width: 20px;">4</td><td style="border: 1px solid black; width: 20px;">5</td><td style="border: 1px solid black; width: 20px;">2</td><td style="border: 1px solid black; width: 20px;">0</td></tr> </table>  | 1      | 4 | 5 | 2     | 0 |   |   |   |   |   |
| 1                           | 4 | 5  | 2      | 0 |   |       |   |   |   |   |   |   |
| Avneet gave the amount to = | = | <table style="border-collapse: collapse; text-align: center;"> <tr><td style="border: 1px solid black; width: 20px;">3</td><td style="border: 1px solid black; width: 20px;">8</td><td style="border: 1px solid black; width: 20px;">4</td><td style="border: 1px solid black; width: 20px;">1</td><td style="border: 1px solid black; width: 20px;">0</td></tr> </table>  | 3      | 8 | 4 | 1     | 0 |   |   |   |   |   |
| 3                           | 8 | 4  | 1      | 0 |   |       |   |   |   |   |   |   |

shopkeeper

Answer ; Avneet gave to the shopkeeper Rs. 384 and 10 paise.

**Example B :** Sukhdev is fond of reading. Sukhdev bought books worth Rs, 325.75 from a bookseller. He gave 500 Rupees note to bookseller. What amount bookseller will return to Sukhdev?

| Amount given to bookseller =    | = | <table style="border-collapse: collapse; text-align: center;"> <tr><th colspan="3">Rupees</th><th colspan="2">Paise</th></tr> <tr><td style="border: 1px solid black; width: 20px;">5</td><td style="border: 1px solid black; width: 20px;">0</td><td style="border: 1px solid black; width: 20px;">0</td><td style="border: 1px solid black; width: 20px;">0</td><td style="border: 1px solid black; width: 20px;">0</td></tr> </table> | Rupees |   |   | Paise |   | 5 | 0 | 0 | 0 | 0 |
|---------------------------------|---|--|--------|---|---|-------|---|---|---|---|---|---|
| Rupees                          |   |  | Paise  |   |   |       |   |   |   |   |   |   |
| 5                               | 0 | 0  | 0      | 0 |   |       |   |   |   |   |   |   |
| Total cost of books =           | = | <table style="border-collapse: collapse; text-align: center;"> <tr><td style="border: 1px solid black; width: 20px;">3</td><td style="border: 1px solid black; width: 20px;">2</td><td style="border: 1px solid black; width: 20px;">5</td><td style="border: 1px solid black; width: 20px;">7</td><td style="border: 1px solid black; width: 20px;">5</td></tr> </table>  | 3      | 2 | 5 | 7     | 5 |   |   |   |   |   |
| 3                               | 2 | 5  | 7      | 5 |   |       |   |   |   |   |   |   |
| Amount returned by Shopkeeper = | = | <table style="border-collapse: collapse; text-align: center;"> <tr><td style="border: 1px solid black; width: 20px;">1</td><td style="border: 1px solid black; width: 20px;">7</td><td style="border: 1px solid black; width: 20px;">4</td><td style="border: 1px solid black; width: 20px;">2</td><td style="border: 1px solid black; width: 20px;">5</td></tr> </table>  | 1      | 7 | 4 | 2     | 5 |   |   |   |   |   |
| 1                               | 7 | 4  | 2      | 5 |   |       |   |   |   |   |   |   |

Book seller returned Rs 174 and 25 paise.

### Exercise 4.3

1. Manveet bought following things in a fair .How much money will she pay to the shopkeeper ?



₹ 156



₹ 35



₹ 234




₹ 48

|   |   |   |   |
|---|---|---|---|
| ₹ | 1 | 5 | 6 |
| ₹ |   | 3 | 5 |
| ₹ | 1 | 9 | 1 |


(c)  ₹ 116  ₹ 280


(d)  ₹ 272  ₹ 129

2. Supreet bought the following things and gave money. How much amount will the shopkeeper return to Supreet.


(a)  ₹ 32 **Rupees returned**

**Notes given**

 = .....

(b)  ₹ 416 **Rupees returned**

**Notes given**

 = .....

- Avneet bought a chocolate worth of Rs. 72 and a juice worth Rs.35. What amount will Avneet pay to shopkeeper?
- Supreet bought a school bag worth Rs.365. He gave Rs.500 to shopkeeper. How much money will be returned by the shopkeeper?
- Vinod bought a book worth Rs.247.75, copies worth Rs.180.60 and pen worth Rs.35.20. How much did he spend in all ?
- Tanisha wants to buy a battery car worth Rs.945 for her brother. She has Rs.820. How much money does she require more to buy it?

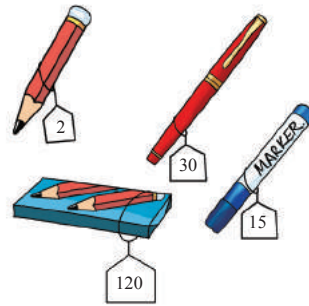


### 4.5. Multiplication of Money

Let's Learn

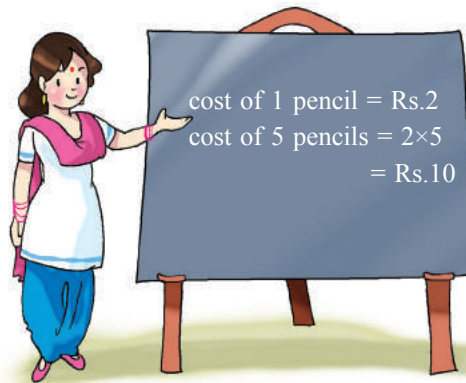


If the cost of 1 pencil is Rs.2 then what will be the cost of 2 pencils?



Now tell me what will be the cost of 5 pencils?

Mam Rs.4



If we know the cost of one unit then we can find the cost of multiple units by multiplication.

**Example B :** The cost of a book is Rs.120. What will be the cost of 6 such books ?

**Solution:**

|                 |               |
|-----------------|---------------|
| Cost of 1 book  | = ₹ 120       |
| Cost of 6 books | = ₹ (120 × 6) |
|                 | = ₹ 1 2 0     |
|                 | × 0 6         |
|                 | ₹ 7 2 0       |



**Example 1 :-** Find the value of seven, 20 rupees notes.

**Solution :**

$$\begin{array}{r} \text{₹ } 20 \\ \times \quad 7 \\ \hline \text{₹ } 140 \end{array}$$

**Example 2 :-** Find the value of nine 50 rupees notes

**Solution :**

$$\begin{array}{r} \text{₹ } 50 \\ \times \quad 9 \\ \hline \text{₹ } 450 \end{array}$$

**Example 3 :-** The cost of a book is Rs.50. Find the cost of 8 such books.

**Solution :**

|                                   |      |              |
|-----------------------------------|------|--------------|
| Cost of 1 book = ₹ 50             | ₹ 50 |              |
| Number of books = 8               |      | × 8          |
| Total cost of the book = ₹ 50 × 8 |      | <u>₹ 400</u> |
| = ₹ 400                           |      |              |

**Example 4 :-** The cost of a pair of shoes is Rs.125. Find the cost of 12 such pairs

**Solution :**

|                                   |       |             |
|-----------------------------------|-------|-------------|
| Cost of one pair of shoes = ₹ 125 | ₹ 125 |             |
| Number of pairs = 12              |       | × 12        |
| Total cost = ₹ 125 × 12           |       | <u>250</u>  |
| = ₹ 1500                          |       | 1250        |
|                                   |       | <u>1500</u> |

### Exercise 4.4

**1. Find the product**

- |               |               |               |
|---------------|---------------|---------------|
| (a) ₹ 25 × 6  | (b) ₹ 30 × 7  | (c) ₹ 49 × 8  |
| (d) ₹ 175 × 8 | (e) ₹ 400 × 5 | (f) ₹ 312 × 3 |
| (g) ₹ 27 × 15 | (h) ₹ 48 × 76 | (i) ₹ 82 × 67 |

**2.** The cost of a doll is Rs.70. Find the cost of 5 such dolls.

3. Manveet bought a jacket of Rs.460. Find the cost of 9 such jackets.
4. Sukdev bought 35 balloons Rs.15 per balloon. How much did he pay to the balloon seller?
5. The cost of a banana is Rs.8. What is the cost a dozen bananas ?

You have learnt about Price List and preparation of bill in Class IIIrd. Let's do more activities related to this.

#### 4.6 Division of money or to find cost of one unit

As we calculate the value of multiple things from a unit cost, similarly we can calculate a unit's cost from multiple units value, it is called limit price. In our daily transactions we give different amount of money to different people. In this part we shall learn to find out unit price or division of money.

**Example 1 :-** The cost of 8 copies is Rs.120. Find the cost of one copy ?

$$\begin{aligned} \text{Solution : cost of 8 copies} &= ₹ 120 \\ \text{cost of 1 copy} &= ₹ 120 \div 8 \\ &= ₹ 15 \end{aligned}$$

**Example 2 :-** Seth Dhani Ram wants to distribute Rs 780 among his 3 sons equally. How much amount did each get?

$$\begin{aligned} \text{Solution : Amount to be distributed among 3 sons} &= ₹ 780 \\ \text{Amount received by 1 son} &= ₹ 780 \div 3 \\ &= ₹ 260 \end{aligned}$$

$$\begin{array}{r} 3 \overline{)780} \quad (260 \\ \underline{6} \phantom{0} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

**Example 3 :-**The cost of 15 shirts is Rs.5250 .Find the cost of one shirt

$$\begin{aligned} \text{Solution : cost of 15 shirts} &= ₹ 5250 \\ \text{cost of one shirt} &= ₹ 5250 \div 15 \\ &= ₹ 350 \end{aligned}$$





## Exercise 4.5





**1. Divide the following amounts :**

- (a) ₹ 160 ÷ 4                      (b) ₹ 475 ÷ 5                      (c) ₹ 564 ÷ 12  
 (c) ₹ 1248 ÷ 6                      (d) ₹ 2665 ÷ 13

2. The cost of 18 toy cars is Rs 450. Find the cost of one toy car?
3. The cost of 13 books is Rs.936. Find the cost of one book.
4. The cost of a dozen oranges is Rs. 84. Find the cost of one orange.
5. An amount of Rs 2848 is to be distributed among 16 children. What amount will each child get?
6. A school received Rs. 9120 to buy uniforms for 19 children of class 4. How much amount did the school get for each uniform ?







**4.6. Prepare bill**

|  |   |
|--|---|
|  Sugar ₹ 16 |  Salt ₹ 5 |
|  Flour ₹ 25 |  Tea ₹ 30  |

| Item         | Amount      |
|--------------|-------------|
| Sugar        | ₹ 16        |
| Salt         | ₹ 5         |
| Flour        | ₹ 25        |
| Tea          | ₹ 30        |
| <b>Total</b> | <b>₹ 76</b> |

2.

|  |   |
|--|---|
|  pen ₹ 12   |  pencil ₹ 6 |
|  Eraser ₹ 2 |  book ₹ 30  |

| Item      | Amount |
|-----------|--------|
| A pen     | ₹ 12   |
| A pencil  | ₹ 6    |
| An Eraser | ₹ 2    |
| A Book    | ₹ 30   |
| Total     | ₹ 50   |

3.

|   |  |
|---|--|
|  Ribbon ₹ 16 |  ₹ 22<br>nail polish |
|  Comb ₹ 9   |  |

| Item        | Amount |
|-------------|--------|
| Ribbon      | ₹ 16   |
| nail polish | ₹ 22   |
| Comb        | ₹ 9    |
| Total       | ₹ 47   |

### Exercise 4.6

1. Read the price of objects in the rate list and prepare a bill for the various purchases :





| Item         | Quantity   | Price |
|--------------|------------|-------|
| Rice         | 1 kg       | ₹ 40  |
| Sugar        | 1 kg       | ₹ 42  |
| Moong daal   | 1 kg       | ₹ 75  |
| Massar daal  | 1 kg       | ₹ 80  |
| Mustard oil  | 1 litre/kg | ₹ 90  |
| Washing soap | 1 kg       | ₹ 60  |
| Butter       | 1 kg       | ₹ 420 |
| Flour        | 1 kg       | ₹ 23  |
| Salt         | 1 kg       | ₹ 17  |

- (a) 2kg rice,1kg sugar,and 500gm butter  
 (b) 1litre mustard oil,4kg salt, 20 kg flour  
 (c) 5kg rice,10 kg flour,1kg salt,500gm washing soap  
 (d) 2kg massar daal,2 kg rice and 20kg sugar  
 (e) 500gm rice,2kg flour,500gm butter and 1 kg moong daal
2. Gavish bought each item 1kg in the above rate list .He gave Rs.500 to shopkeeper. How much amount of money will he get back ?



 **Multiple Choice Questions (MCQs)**

1. How many 50 paise coins are there in ₹ 10 ?  
(a) 4 (b) 6  
(c) 20 (d) 13
2. 28 coins of 50 paise will make Rs.  
(a) ₹ 50 (b) ₹ 10  
(c) ₹ 28 (d) ₹ 14
3. Shikha bought items worth Rs.65. She gave 100 rupee note to shop-keeper. How many rupees will she get back from shopkeeper?  
(a) ₹ 25 (b) ₹ 35  
(c) ₹ 45 (d) ₹ 50
4. Sudhir bought a chocolate worth Rs. 40 and and a pastry worth Rs. 35 How much did he spend ?  
(a) ₹ 55 (b) ₹ 5  
(c) ₹ 75 (d) ₹ 80
5. Arun bought a pencil worth Rs.5, eraser worth Rs.2 and a pen worth Rs.10.He gave 20 rupee note to shopkeeper. How many rupees will he get back?  
(a) ₹ 3 (b) ₹ 17  
(c) ₹ 22 (d) ₹ 15

**Points to be remembered**

- ❖ Rs.1 = 100 paise
- ❖ Rs.1 = 2 fifty paise coins
- ❖ Rs.1 = 4 twenty five paise coins
- ❖ Rs.1 = 5 twenty paise coins
- ❖ Rs.1 = 10 ten paise coins



## **We have Learnt**

- Students are able to convert rupees into paise.
- Students are able to add, subtract, multiply and divide the amounts of money.
- Understanding of proper use of money in daily life.

## **Answer Key**

### **Exercise 4.2**

- (a) ₹ 170      (b) ₹ 310      (c) ₹ 325      (d) ₹ 230      (e) ₹ 157
- (a) ₹ 270      (b) ₹ 590      (c) ₹ 630      (d) ₹ 450      (e) ₹ 410
- (a) ₹ 50      (b) ₹ 250      (c) ₹ 230      (d) ₹ 45      (e) ₹ 175

### **Exercise 4.3**

- (a) ₹ 191      (b) ₹ 282      (c) ₹ 396      (d) ₹ 401
- (a) ₹ 18      (b) ₹ 84      3. ₹ 107
- ₹ 135      5. ₹ 463.55      6. ₹ 125

### **Exercise 4.4**

- (a) ₹ 150      (b) ₹ 210      (c) ₹ 392      (d) ₹ 1400      (e) ₹ 2000  
(f) ₹ 936      (g) ₹ 405      (h) ₹ 3,648      (i) ₹ 5,494
- (a) ₹ 350      3. ₹ 4140      4. ₹ 525      5. ₹ 96

### **Exercise 4.5**

- (a) ₹ 40      (b) ₹ 95      (c) ₹ 47      (d) ₹ 208      (e) ₹ 205
- ₹ 25      3. ₹ 72      4. ₹ 7      5. ₹ 178      6. ₹ 480

### **Exercise 4.6**

- (a) ₹ 332      (b) ₹ 618      (c) ₹ 477      (d) ₹ 1080      (e) ₹ 351
- (a) ₹ 1153

### **Multiple Choice Question (MCQ)**

- (c)
- (d)
- (b)
- (c)
- (a)





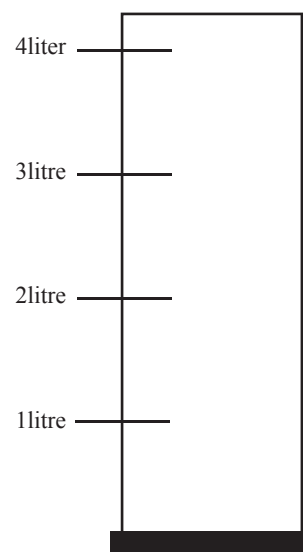
# MEASUREMENT

## OBJECTIVES :- To enable the students :

1. To compare length, weight and capacity of the things.
2. To make them measure length ,weight and capacity in units.
3. To find relation of meter and centimetre.
4. To solve problems in daily life related to length, weight and capacity.
5. To get ready for competitive exams.

## Revision

1. The length of pencil is 19 ..... . (centimetre, kilogram ,meter)
2. Weight of a brick is 3..... . (litre, kilogram, meter)
3. There is 2.....water in the jug. (litre, kilogram, meter)
4. Draw a picture on weighing scale.



5. Colour the given container having capacity upto 2 litre



## 5.1 Length



Earlier you have learnt how to measure length and distance with the help of handspan and feet and then with meter and centimetre.

Do you remember where meter is used?

We use meter rod, measuring tape and Inches tape to measure the length in meters.

Yes sir, Cloth merchant measures the length of clothes with meter rod.



### 5.1.1 Measuring the length in centimetres



Students ! What do we use to measure length of pencil, eraser and line segment in centimetres ?

We use scale to measure the length in centimetres.



Look at scale there are 15 big marks and distance between them is called centimetres.

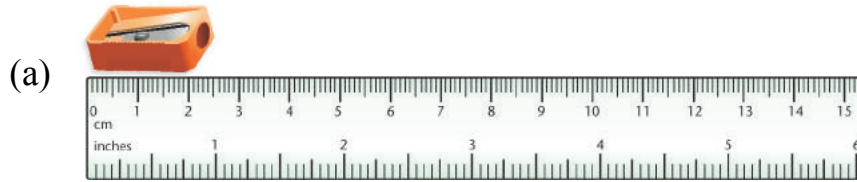
We measure the length of small objects in centimetres with the help of scale.





Lets do some examples.

**Example 1 :** Measure the length of sharpener and line segment in centimetres :



Length of sharpener = 2 cm



Length of line segment = 10 cm

**Example 2 :** Take a chalk stick estimate its, length in cms. ,find the exact length with the help of a scale :

**Solution :**



Estimate length of chalk stick = 5 cm



Actual length of chalk stick = 6 cm

**Example 3 :** Find the distance between given points :



Length distance two points = 8 cm

**Remember**  
Always start from 0 when we measure by scale






**Example 4 :** Find the distance between given points :



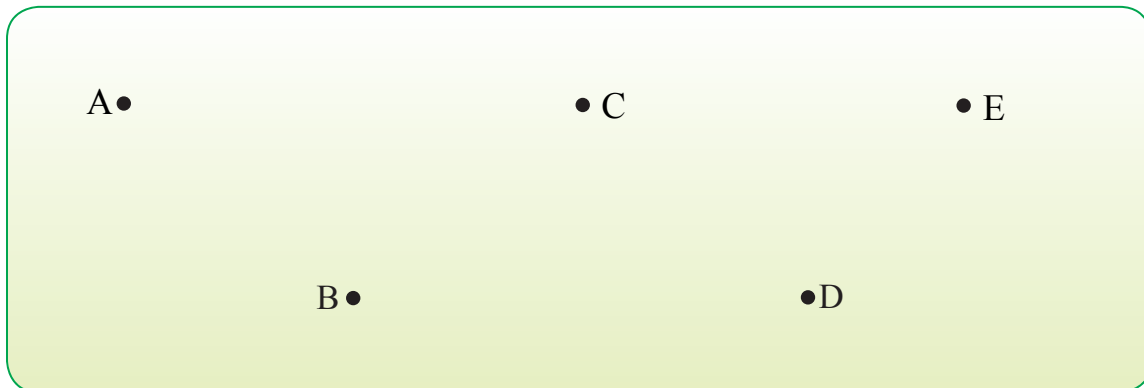
Length distance two points = 4 cm

## Exercise 5.1

### 1. Complete the table

| Item  | Estimate length in cm | Actual length in cm |
|---|-----------------------|---------------------|
|  |                       | cm                  |
|  |                       | cm                  |
|  |                       | cm                  |
|  |                       | cm                  |
|  |                       | cm                  |

### 2. Find the distance between given dots and give the following answers :



- Distance from point A to B = ..... cm
- Distance from point B to D = ..... cm
- Distance from point A to E = ..... cm
- Distance from point C to D = ..... cm
- Distance from point B to E = ..... cm
- Distance from point A to D = ..... cm



### 5.1.2 Measure length in Centimetres and Millimetres



Students ! Have you seen the small marks between centimetres ?

Yes Sir

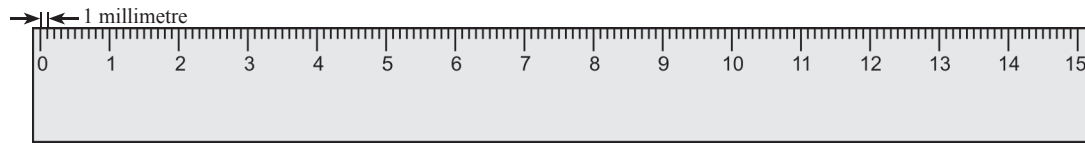
Do you know how many another small marks are there between 0 and 1 cm ?

No Sir

Do you know what are these small marks ?

These marks are signs for millimetres. There are 10 marks between a centimetre.

Therefore  
1cm=10mm



1 Centimeter = 10 Millimeter

### 5.1.3 Measuring the length in centimetres and millimetre

**Example 1 :** Find length of a pencil and a line segment in cm and mm :



Length of a pencil=5cm 5mm



Length of a line segment = 2cm 5mm





## Exercise 5.2

### 1. Measure the length of given items in cm and mm :



..... cm. .... mm



..... cm ..... mm

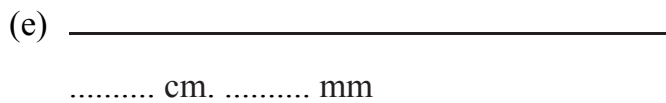
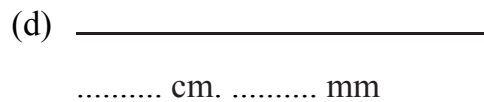
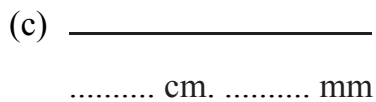
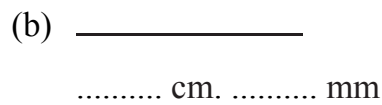
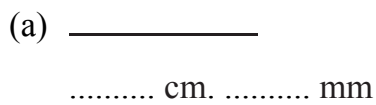


..... cm ..... mm



..... cm ..... mm

### 2. Measure the length of line segments in cm and mm :



3. Measure the length and breadth of given currency notes :



(a) Length .....cm .....mm

(b) Breadth .....cm .....mm



(c) Length .....cm .....mm

(d) Breadth .....cm .....mm

5.2 Meter

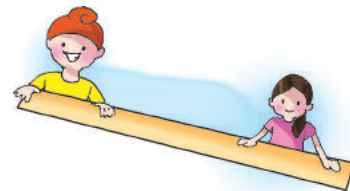
The standard unit of length is meter



A meter rod is divided into 100 equal parts Every part shows 1cm. A meter has 10, 20, 30 ... marked on it instead of 1, 2, 3 .....

Activity

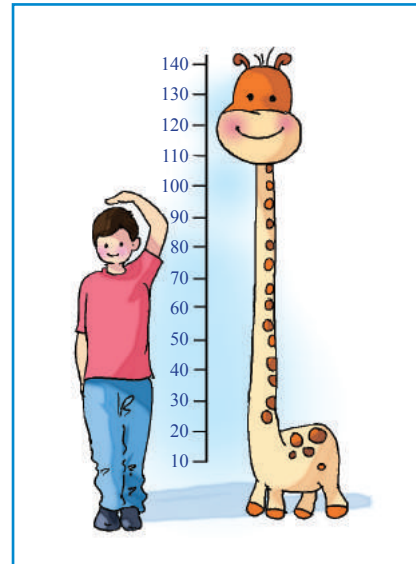
With the help of teacher, prepare your own meter by marking a rod or string like a meter rod and measure the length of following things (Ignore less than one meter and consider more than half meter as a meter) :



| Items               | Length in meters |
|---------------------|------------------|
| 1. Blackboard       |                  |
| 2. Classroom window |                  |
| 3. Table            |                  |
| 4. Almirah (Length) |                  |
| 5. Mat              |                  |

## Activity

Measure the height of the students of the class with height measurement tool available in your school and complete the table given below:

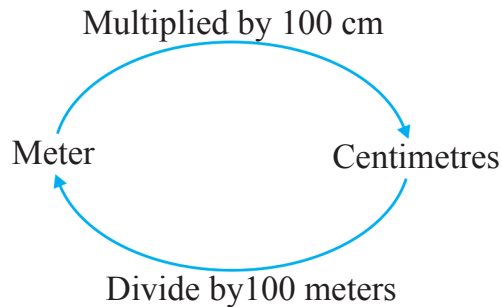


| Serial no. | Name of the student | Height (in metres) |
|------------|---------------------|--------------------|
| 1.         |                     |                    |
| 2.         |                     |                    |
| 3.         |                     |                    |
| 4.         |                     |                    |
| 5.         |                     |                    |



### 5.2.1. Relationship of meter and centimetre

$$1 \text{ meter} = 100 \text{ cm}$$



#### Remember

To convert meter into centimetre, multiply by 100 to convert centimetre to meter, divide by 100

**Example 1 :** Convert 3 meter into centimetres.

**Solution :** 1 meter = 100 centimeter

$$3\text{m} = 3 \times 1 \text{ m}$$

$$3\text{m} = 3 \times 100 \text{ cm}$$

$$3\text{m} = 300 \text{ cm}$$

**Example 2 :** Convert 400 cm into metre.

**Solution :** 100 cm = 1 m

$$400 \text{ cm} = (400 \div 100) \text{ m}$$

$$400 \text{ cm} = 4\text{m}$$

**Example 3 :** Height of a child is 125 cm. Convert it into meter and centimetres.

**Solution :** 100 cm = 1m

$$125 \text{ cm} = 100 \text{ cm} + 25 \text{ cm}$$

$$125 \text{ cm} = 1 \text{ m } 25 \text{ cm} \quad [\because 100 \text{ cm} = 1 \text{ m}]$$



## Exercise 5.3

**1 meter = 100 cm**

**1. Convert into metre :**

- |                      |                      |
|----------------------|----------------------|
| (a) 400 cm = ..... m | (b) 700 cm = ..... m |
| (c) 200 cm = ..... m | (d) 800 cm = ..... m |
| (e) 500 cm = ..... m | (f) 900 cm = ..... m |

**2. Convert into centimetres:**

- |                    |                    |
|--------------------|--------------------|
| (a) 3 m = ..... cm | (b) 6 m = ..... cm |
| (c) 4 m = ..... cm | (d) 9 m = ..... cm |
| (e) 2 m = ..... cm | (f) 5 m = ..... cm |

**3. Mohit measures length of given items with help of 30 cm scale. Show this length in meter and centimetres.**

| Items                   | Length in cm | Length in meter and cm. |
|-------------------------|--------------|-------------------------|
| 1. Length of table      | 108 cm       | ....m ....cm            |
| 2. Height of a child    | 132 cm       | ....m ....cm            |
| 3. Length of blackboard | 305 cm       | ....m ....cm            |
| 4. Breadth of a room    | 450 cm       | ....m ....cm            |

**4. Estimate the distance in metres and also find the actual distance with the help of meter rod or measurement tape.**

| Place                     | Estimated distance | Actual distance |
|---------------------------|--------------------|-----------------|
| 1. Classroom to library   |                    |                 |
| 2. Classroom to main gate |                    |                 |
| 3. Classroom to water tap |                    |                 |

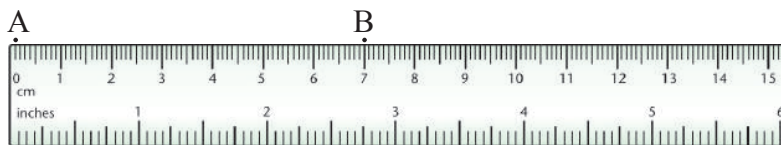
### 5.3 Draw a line segment of given length

To draw a line segment of given length (suppose 7 cm) we follow the steps as below :

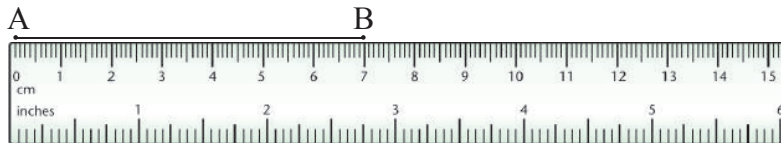
1. Take a point A.
2. Place the scale in such a way the '0' is on point A as shown in figure.



3. Mark a point B at 7cm.



4. Join A and B moving the pencil along the edge of the scale.



5. AB is required line segment 7cm.

### Exercise 5.4

1. Draw a line segment by joining the given points and measure their lengths :

|                                       |                         |                         |
|---------------------------------------|-------------------------|-------------------------|
| (a)<br><br>A•                      •B | (b)<br><br>•Q<br><br>P• | (c)<br><br>M•<br><br>•N |
|---------------------------------------|-------------------------|-------------------------|

2. Draw line segments of given lengths :

- |          |          |          |
|----------|----------|----------|
| (a) 5 cm | (b) 8 cm | (c) 6 cm |
| (d) 2 cm | (e) 7 cm | (f) 9 cm |





## Practical Activity

### Maths in Daily Life

Manjot's father was reading a newspaper. He told Manjot that 38 mm rain was recorded in Punjab yesterday. Manjot asked with curiosity how we measure rain in mm. Father answered that it was very simple technique.

It was Sunday .It might rain. Father asked Manjot to put a tub on the roof of their house .It kept raining the whole day . Manjot measured the water filled in the tub with the help of a scale. The water level reached upto mark 3 and 5 small marks above 3. Manjot put a mark with the help of marker.

$$3 \text{ means } = 3 \text{ cm}$$

$$5 \text{ means } = 5 \text{ mm}$$

$$3 \text{ cm} = 3 \times 10 = 30 \text{ mm}$$

$$3 \text{ cm } 5 \text{ mm} = 30 + 5 = 35 \text{ mm}$$

Punjab recorded 35 mm rain on Sunday





### 5.3.1. Addition and Subtraction of units of length

Addition and subtraction can be done by same units of length. i.e., meter will be added or subtracted from meter and centimeter will be added or subtracted from centimeter. Addition and subtraction is done as usual

**Example 1 :** Add the following :

(a)  $7 \text{ m } 30 \text{ cm} + 2 \text{ m } 15 \text{ cm}$

|   |   |    |
|---|---|----|
|   | m | cm |
|   | 7 | 30 |
| + | 2 | 15 |
|   | 9 | 45 |

(b)  $6 \text{ m } 49 \text{ cm} + 7 \text{ m } 05 \text{ cm}$

|   |    |    |
|---|----|----|
|   | m  | cm |
|   | 6  | 49 |
| + | 7  | 05 |
|   | 13 | 54 |

**Example 2 :** Subtract :

(a)  $9 \text{ m } 64 \text{ cm} - 5 \text{ m } 35 \text{ cm}$

|   |   |    |
|---|---|----|
|   | m | cm |
|   | 9 | 64 |
| - | 5 | 35 |
|   | 4 | 29 |

(b)  $8 \text{ m } 40 \text{ cm} - 1 \text{ m } 35 \text{ cm}$

|   |   |    |
|---|---|----|
|   | m | cm |
|   | 8 | 40 |
| - | 1 | 35 |
|   | 7 | 05 |

**Example 3 :** Distance of Preet's school from her house is 320 metre whereas her Farm is 500 m. Which distance is farther and by how much?

**Solution :**

|                               |                    |
|-------------------------------|--------------------|
| Distance of farm from house   | = 500 m            |
| Distance of school from house | = 320 m            |
|                               | Difference = 180 m |

Distance from Preet's house to field is 180 m more than his school.





## Exercise 5.5

### 1. Add the following :

(a)  $8\text{ m } 40\text{ cm} + 4\text{ m } 35\text{ cm}$

(b)  $2\text{ m } 62\text{ cm} + 6\text{ m } 25\text{ cm}$

(c)  $5\text{ m } 37\text{ cm} + 7\text{ m } 20\text{ cm}$

(d)  $3\text{ m } 45\text{ cm} + 6\text{ m } 15\text{ cm}$

(e)  $1\text{ m } 50\text{ cm} + 2\text{ m } 25\text{ cm}$

(f)  $9\text{ m } 44\text{ cm} + 5\text{ m } 35\text{ cm}$

### 2. Subtract :

(a)  $9\text{ m } 70\text{ cm} - 7\text{ m } 35\text{ cm}$

(b)  $6\text{ m } 84\text{ cm} - 1\text{ m } 35\text{ cm}$

(c)  $5\text{ m } 72\text{ cm} - 3\text{ m } 60\text{ cm}$

(d)  $4\text{ m } 18\text{ cm} - 3\text{ m } 12\text{ cm}$

(e)  $9\text{ m } 50\text{ cm} - 4\text{ m } 25\text{ cm}$

(f)  $5\text{ m } 81\text{ cm} - 5\text{ m } 75\text{ cm}$

- Maya uses  $1\text{m}50\text{cm}$  red ribbon and  $2\text{m}25\text{cm}$  green ribbon to make a flower. How much total ribbon did she use?
- Saroj bought  $5\text{m}50\text{cm}$  cloth for herself and  $3\text{m}25\text{cm}$  for her daughter. Find the total length of cloth did she buy?
- Distance of Sourav's school from his house is 275 metre and distance of Gourav's house from his school is 310 m. How much more distance is covered by Gourav than that of Sourav?

### 5.4. Weight

For measuring weight, we put goods on one side and standard weights on the other side of the weighing scale.



Generally following standard weights are used



Weight of things is measured in kilograms and grams.

$$1 \text{ kilogram} = 1000 \text{ gm.}$$

We measure heavy things in kilograms and light things in grams. For example we measure our weight in kilograms and measure the weight of gold or silver in grams.

### Exercise 5.6

1. Raju's mother bought following things from the market. Find out which items she bought in kg and which items in grams :



(a) potatoes 3....



(b) cauliflower 800....



(c) tomato 500....



(d) onion 2....



(e) chilly 200....



(f) turmeric 250....



(g) sugar 5....



(h) salt 1....





(i) daal 1....



(j) rice 2....



(k) grapes 700....



(l) peas 500....



(m) jaggery (Gurhh) 3....



(n) tea 500....



(o) gold bangle 15....



(p) wheat 25.....

**2. Find the weight :**

(a) Weight of carrots is 1kg and 500gm.



(b) Weight of ladoos is .... kg ..... gm.



(c) Weight of brinjal is ... kg ..... gm.




(d) Weight of pumpkin is .... kg ..... gm.



3. Take some items. Estimate the weight of of such items and also measure the actual weight by using standard weights and weighing balance and fill up in the table :

| Items         | Estimated weight | Actual weight |
|---------------|------------------|---------------|
| 1. Maths book |                  |               |
| 2.            |                  |               |
| 3.            |                  |               |
| 4.            |                  |               |
| 5.            |                  |               |
| 6.            |                  |               |
| 7.            |                  |               |


4. Complete the table :

| Weight  | Kg and gm | In grams |
|---|-----------|----------|
| (a)    | 1kg 700gm | 1700gm   |
| (b)  |           |          |
| (c)  |           |          |
| (d)  |           |          |
| (e)  |           |          |
| (f)  |           |          |

**Hint For Teacher**

-Teacher can take measuring scale from shopkeeper or a vegetable vendor.

5. To measure 1kg, how many standard weighing units are missing in the following and draw them :

|     |   |   |   |   |   |   |  |   |     |
|-----|---|---|---|---|---|---|--|---|-----|
| (a) |  | + |   | = | 1Kg   |   |  |   |     |
| (b) |  | + |  | + |  | + |  | = | 1Kg |
| (c) |  | + |  | + |  | + |  | = | 1Kg |
| (d) |  | + |  | + |  | + |  | = | 1Kg |
| (e) |  | + |  | + |   | + |  | = | 1Kg |

### Activity

Measure the weight of students of the class in your school with the help of weighing machine and complete the table.



| Sr. No. | Name of the student | Weight in kg. |
|---------|---------------------|---------------|
| 1.      |                     |               |
| 2.      |                     |               |
| 3.      |                     |               |
| 4.      |                     |               |
| 5.      |                     |               |

#### 5.4.1 Addition and subtraction of weight in units

Like units of the units of weight can be added and subtracted. We add and subtract like length, the units.





**Example 1 :** Find the sum :

(a) 9 kg 654 gm + 1 kg 138 gm

| kg  | gm    |
|-----|-------|
| 9   | 6 5 4 |
| + 1 | 1 3 8 |
|     |       |
| 1 0 | 7 9 2 |
|     |       |

(b) 7 kg 670 gm + 2 kg 288 gm

| kg  | gm    |
|-----|-------|
| 7   | 6 7 0 |
| + 2 | 2 8 8 |
|     |       |
| 9   | 9 5 8 |
|     |       |

**Example 2 :** Subtract :

(a) 8 kg 704 gm – 5 kg 510 gm

| kg  | gm    |
|-----|-------|
| 8   | 7 0 4 |
| – 5 | 5 1 0 |
|     |       |
| 3   | 1 9 4 |
|     |       |

(b) 7 kg 972 gm – 5 kg 104 gm

| kg  | gm    |
|-----|-------|
| 7   | 9 7 2 |
| – 5 | 1 0 4 |
|     |       |
| 2   | 8 6 8 |
|     |       |

**Example 3 :** Harjeet’s mother bought 25kg 250gm of onions and 30kg 500gm of potatoes. How much vegetables did she buy?

**Solution :**

|                                    | kg | gm  |
|------------------------------------|----|-----|
| Harjeet's mother bought onions =   | 25 | 250 |
| Harjeet's mother bought potatoes = | 30 | 500 |
|                                    |    |     |
| Total weight =                     | 55 | 750 |

Total weight of vegetables = 55 kg 750 gm

### Exercise 5.7

**1. Add :**

(a) 8 kg 450 gm + 1 kg 210 gm

(b) 5 kg 675 gm + 2 kg 205 gm

(c) 3 kg 225 gm + 7 kg 527 gm

(d) 3 kg 050 gm + 1 kg 400 gm

(e) 9 kg 100 gm + 5 kg 075 gm

(f) 4 kg 650 gm + 6 kg 275 gm



## 2. Subtract :

- (a)  $5 \text{ kg } 845 \text{ gm} - 2 \text{ kg } 525 \text{ gm}$
  - (b)  $9 \text{ kg } 605 \text{ gm} - 6 \text{ kg } 275 \text{ gm}$
  - (c)  $8 \text{ kg } 360 \text{ gm} - 3 \text{ kg } 150 \text{ gm}$
  - (d)  $6 \text{ kg } 320 \text{ gm} - 4 \text{ kg } 175 \text{ gm}$
  - (e)  $4 \text{ kg } 500 \text{ gm} - 1 \text{ kg } 250 \text{ gm}$
  - (f)  $7 \text{ kg } 425 \text{ gm} - 6 \text{ kg } 280 \text{ gm}$
3. Dilpreet bought 5kg 500gm of potatoes and 2kg 250gm cauliflower. How much vegetables did he buy?
  4. Harjot's weight is 20kg 500gm less than that of his brother. If his brother's weight is 62kg 750gm. Find the weight of Harjot.
  5. A dealer bought 80kg 500gm apples. He sold 4kg 400gm. What is the weight of remaining apples?
  6. An NGO distributed roasted gram (chana) packets in flood affected area. The weight of every packet is 2kg. NGO distributed 450 packets. How many kgs of packets they distributed?

## 5.5. Capacity (Volume)

You must have often seen around you water bottle, packet of milk, cold drink bottle, juice bottle etc. The quantity of liquid in these containers is called their capacity of bottle, packet and container.

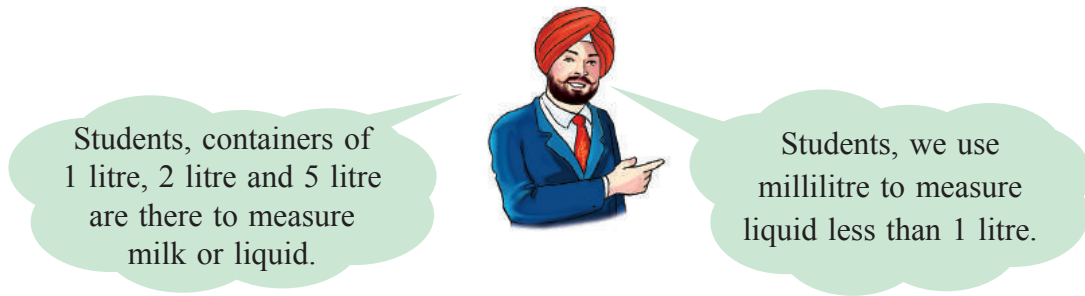


Dear students! we often buy milk in the morning. Some households take milk from milkman, others bring milk from dairy. Do you know how milk is measured?



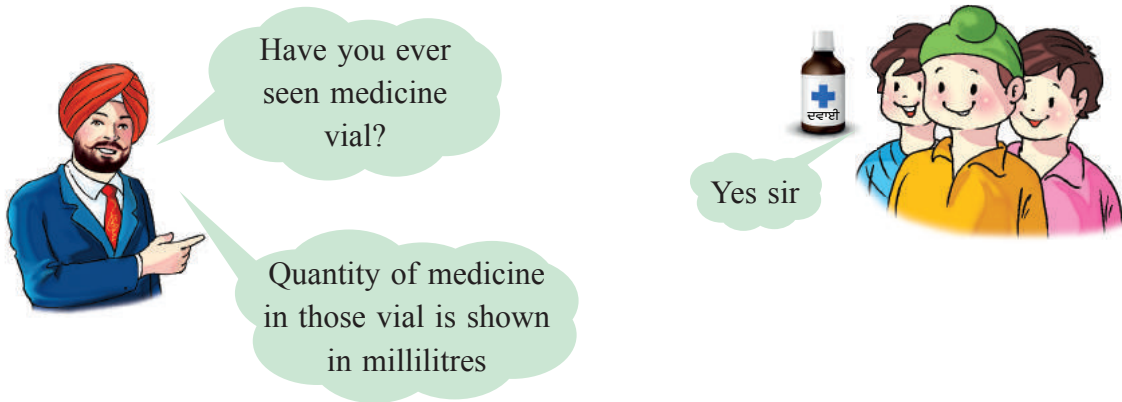
Yes sir, milk is measured with the help of special container.





Students, containers of 1 litre, 2 litre and 5 litre are there to measure milk or liquid.

Students, we use millilitre to measure liquid less than 1 litre.



Have you ever seen medicine vial?

Yes sir

Quantity of medicine in those vial is shown in millilitres

Litre is standard unit for measuring the liquids like water, milk etc. Larger quantity is measured in litres and smaller quantity in millilitres.

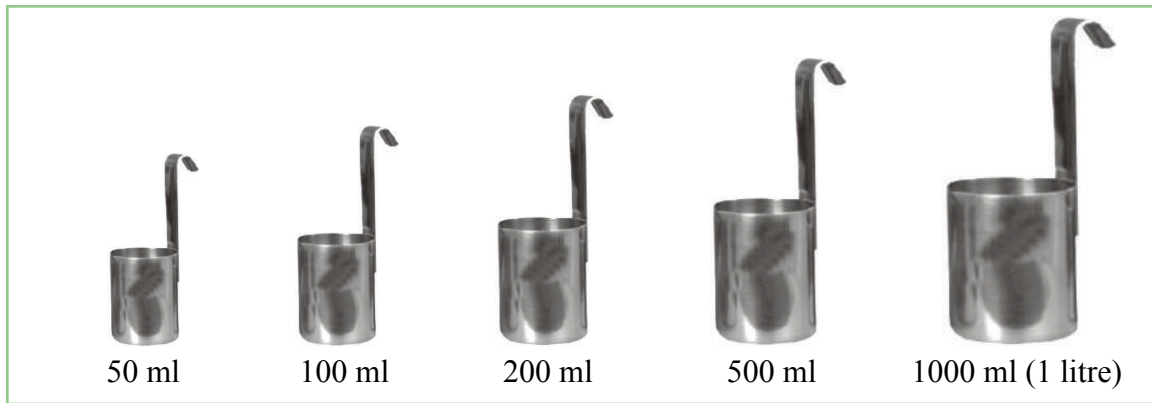
1 litre = 1000 millilitre

We use different measures (scales) to measure liquids .Some of these are as follows:



**Hint For Teacher** - Teacher can show containers with help of milkman.





### Practical Activity

**Material :** A bucket and bottle having 1 litre capacity

**Activity :** Fill your bathing bucket using 1 litre bottle. Note down how many bottles did you use to fill the bucket. You will come to know the capacity of your bucket in litres.



((Note : This activity is to be done under guidance of elder members of the family))

### Related to daily life:

Rajji got ill. The doctor gave her 2 vials of medicine and asked her to take 5ml medicine from each vial. But her mother was unable to find exact quantity of 5ml. So she gave medicine on estimated basis. Rajji could not get well inspite of taking medicine because medicine was not given in proper quantity.

From the above examples we know how important the smaller standard units of measuring are!

### Remember

1 litre = 1000 ml



## Exercise 5.8

1. In which unit we shall measure the capacity of given things millilitre or litre ? Tick  the millilitre or litre :



(a) Mililitre   
Litre



(b) Mililitre   
Litre



(c) Mililitre   
Litre



(d) Mililitre   
Litre



(e) Mililitre   
Litre



(f) Mililitre   
Litre



(g) Mililitre   
Litre



(h) Mililitre   
Litre



(i) Mililitre   
Litre



(j) Mililitre   
Litre



(k) Mililitre   
Litre



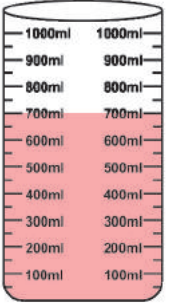
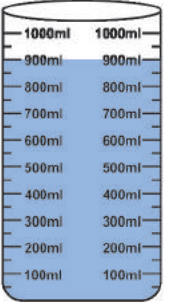
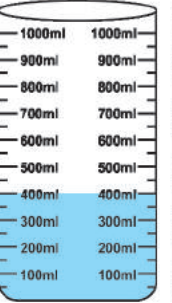
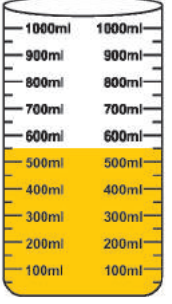
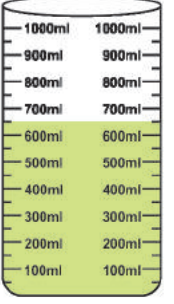
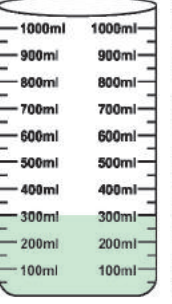
(l) Mililitre   
Litre



2. Write litre or millilitre according to capacity of given things :

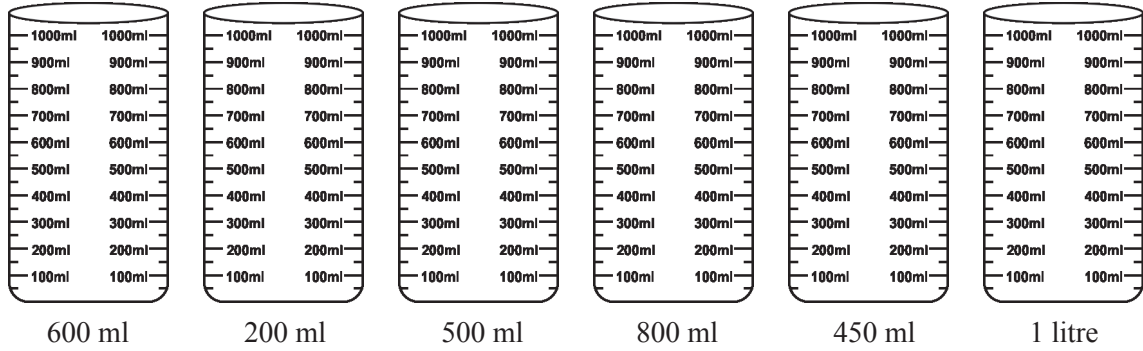
|  |   |   |
|--|---|---|
|  <p>(a) 200 .....</p> |  <p>(b) 50 .....</p> |  <p>(c) 20 .....</p> |
|  <p>(d) 5 .....</p>   |  <p>(e) 1 .....</p>  |  <p>(f) 25 .....</p> |

3. Find out the quantity of liquid in both containers and also find the sum and write in millilitres :

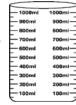
|   |   |   |
|---|---|---|
|  |  |  |
| <p>(a) 700 ml + 500 ml<br/>1200 ml</p>  | <p>(b) .... ml + .... ml<br/>..... ml</p>   | <p>(c) .... ml + .... ml<br/>..... ml</p>   |
|  |  |  |
| <p>(d) .... ml + .... ml<br/>..... ml</p>   | <p>(e) .... ml + .... ml<br/>..... ml</p>   | <p>(f) .... ml + .... ml<br/>..... ml</p>   |



**4. Coloured the glasses according to given capacity :**

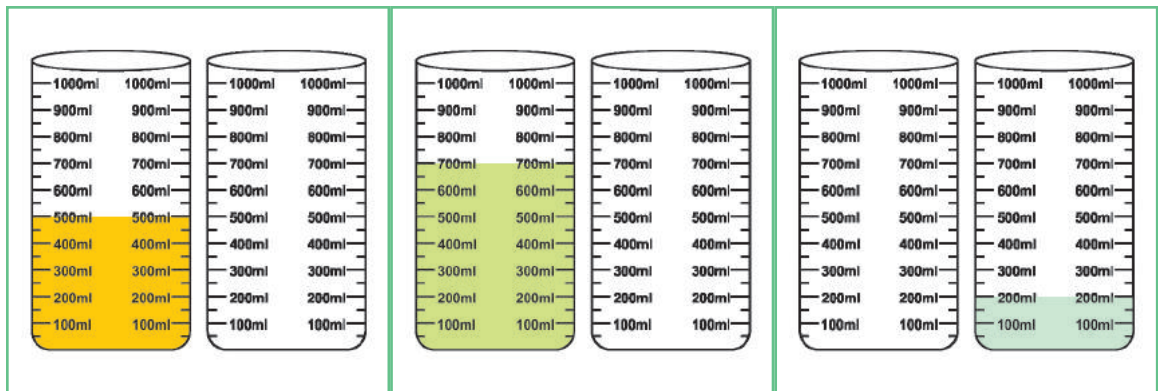


**5. Take some items. Estimate their capacity and measure their actual capacity with measuring cylinder. Complete the table.**



| Items  | Estimated capacity | Actual capacity |
|--------|--------------------|-----------------|
| 1. Jug |                    |                 |
| 2.     |                    |                 |
| 3.     |                    |                 |
| 4.     |                    |                 |
| 5.     |                    |                 |

**6. In given containers one is shaded. Shade the another container in such a way that capacity of both the containers become one litre :**



**5.5.1 Addition and Subtraction of capacity units**

Only like units of capacity can be added and subtracted as we do in the case of length and weight. We add and subtract like numbers.

**Example 1 :**

(a) 8 litre 870 ml + 6 litre 053 ml

|       |       |
|-------|-------|
| litre | ml    |
| 8     | 8 7 0 |
| + 6   | 0 5 3 |
| 1 4   | 9 2 3 |

(b) 5 litre 795 ml + 1 litre 106 ml

|       |       |
|-------|-------|
| litre | ml    |
| 5     | 7 9 5 |
| + 1   | 1 0 6 |
| 6     | 9 0 1 |

**Example 2 :**

(a) 6 litre 305 ml – 3 litre 190 ml

|       |       |
|-------|-------|
| litre | ml    |
| 6     | 3 0 5 |
| – 3   | 1 9 0 |
| 3     | 1 1 5 |

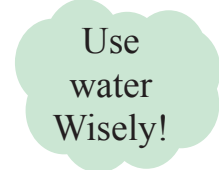
(b) 3 litre 920 ml – 1 litre 084 ml

|       |       |
|-------|-------|
| litre | ml    |
| 3     | 9 2 0 |
| – 1   | 0 8 4 |
| 2     | 8 3 6 |

**Exmpale 3 :** Raju washes his car with pipe fixed to tap and uses 65 litre 850ml of water whereas Manjit washes his car and uses 20 litre water .Who uses lesser water to wash his car and by how much?

**Solution :**

|                     |              |        |
|---------------------|--------------|--------|
|                     | litre        | ml     |
| Raju uses water =   | 65           | 850    |
| Manjit uses water = | 20           | 000    |
|                     | Difference = | 45 850 |



Manjit used 45 litre 850 ml less water than that of Raju.

**Exercise 5.9**

**1. Add the following :**

(a) 8 litre 675 ml + 1 litre 210 ml

(b) 3 litre 225 ml + 2 litre 205 ml

(c) 2 litre 605 ml + 7 litre 327 ml



- (d) 4 litre 175 ml + 2 litre 290 ml
- (e) 9 litre 220 ml + 2 litre 735 ml
- (f) 5 litre 125 ml + 8 litre 425 ml

**2. Subtract :**

- (a) 5 litre 470 ml – 3 litre 315 ml
- (b) 6 litre 705 ml – 5 litre 550 ml
- (c) 4 litre 970 ml – 1 litre 237 ml
- (d) 6 litre 500 ml – 2 litre 370 ml
- (e) 7 litre 075 ml – 2 litre 025 ml
- (f) 9 litre 700 ml – 7 litre 425 ml

- 3. A confectioner required 75 litre milk for making condensed milk ( khoya), 40 litre milk for cheese and 8 litre milk for tea. How many litres of milk does he require?
- 4. Sunita’s mom bought 5litre 500ml milk. She used 2 litre milk for Rice pudding (kheer). How much milk was left?
- 5. The capacity of a water tank is 750 litre. There is 475 litre water in it. How much more water is required to fill the tank?

**Activity**

Collect bottles, medicine vials, empty boxes, and packets from your surrounding. Note down the capacity of each. Cut the wrapper and Paste them on the given places.

| Litre | Mililitre |
|-------|-----------|
|       |           |

| Litre | Millilitre |
|-------|------------|
|       |            |

### Multiple Choice Questions (MCQ)

Tick (✓) on the right answer :

- What is the standard unit of length?  
 (a) litre                      (b) meter                      (c) gm                      (d) kilogm
- What is the standard unit to measure weight?  
 (a) gm                      (b) centimeter                      (c) meter                      (d) litre
- 35 meter = .....cm  
 (a) 350 centimeter                      (b) 3500 cm  
 (c) 35000 cm                      (d) none of these
- 40 mm=.....cm  
 (a) 400 cm                      (b) 4000 cm                      (c) 4 cm                      (d) none of these
- 1kilogram=.....gram  
 (a) 10 gm                      (b) 1000 gm                      (c) 100 gm                      (d) none of these
- 6000 gm = .....kg  
 (a) 5                      (b) 8                      (c) 7                      (d) 6
- 22 litre = .....ml  
 (a) 220 ml                      (b) 22000 ml                      (c) 2200 ml                      (d) none of these
- Capacity of 1 glass is 250 ml. How many such glasses will be filled from the bottle of 2 litres ?  
 (a) 10                      (b) 6                      (c) 4                      (d) 8






9. Manjot's father bought 40kg onion and 50 kg potatoes from the market. How much vegetables did he buy?

- (a) 70 kg      (b) 90 kg      (c) 80 kg      (d) 100 kg

10. A water tank contains 800 litre water. If 350 litre is used. How many litres of water is left in the water tank?

- (a) 300 litre      (b) 400 litre      (c) 450 litre      (d) 200 litre



**Things to Remember**

- ❖ 1 meter = 100 cm
- ❖  $1 \text{ cm} = \frac{1}{100} \text{ m}$
- ❖ 1 kilogram = 1000 gm
- ❖ 1 litre = 1000 ml

### Learning Outcomes

- Students come to know about the relation between meters and centimetres
- Student will be able to convert meter into centimetres and centimetres into meters.
- Student will know the standard units of weight and capacity (volume)
- Student will have understanding of measurement in daily life activities.
- Getting ready for competitive exams

### Answer Key

#### Revision

1. cm                      2. kg                      3. litre

#### Exercise 5.1

2. (a) 4 cm              (b) 6 cm              (c) 5 cm              (d) 4 cm  
 (e) 11 cm              (f) 6 cm

#### Exercise 5.2

1. (a) 7 cm 8 mm                      (b) 3 cm 4 mm  
 (c) 3 cm 8 mm                      (d) 6 cm 5 mm





2. (a) 3 cm 7 mm (b) 4 cm 6 mm  
 (c) 5 cm 2 mm (d) 6 cm 8 mm  
 (e) 8 cm 3 mm (f) 12 cm 5 mm
3. (a) 16 cm 8 mm (b) 6 cm 6 mm  
 (c) 14 cm 6 mm (d) 6 cm 6 mm

### Exercise 5.3







1. (a) 4 m (b) 7 m (c) 2 m (d) 8 m (e) 5 m (f) 9 m
2. (a) 300 cm (b) 600 cm (c) 400 cm  
 (d) 900 cm (e) 200 cm (f) 500 cm
3. 1. 1 m 8 cm 2. 1 m 32 cm 3. 3 m 5 cm  
 4. 4 m 50 cm

### Exercise 5.5

1. (a) 12 m 75 cm (b) 8 m 87 cm (c) 12 m 57 cm  
 (d) 9 m 60 cm (e) 3 m 75 cm (f) 14 m 79 cm
2. (a) 2 m 35 cm (b) 5 m 49 cm (c) 2 m 12 cm  
 (d) 1 m 06 cm (e) 5 m 25 cm (f) 3 m 06 cm
3. 3 m 75 cm 4. 8 m 75 cm 5. 35 meter

### Exercise 5.6

1. (a) kg (b) gm (c) gm (d) kg  
 (e) gm (f) gm (g) kg (h) kg  
 (i) kg (j) kg (k) gm (l) gm  
 (m) kg (n) gm (o) gm (p) kg
2. (a) 1 kg 500 gm (b) 1 kg 200 gm  
 (c) 2 kg 100 gm (d) 2 kg 300 gm
4. (b) 1 kg 900 gm , 1900 gm (c) 2 kg 500 gm , 2500 gm  
 (d) 3 kg 350 gm , 3350 gm (e) 1 kg 700 gm , 1700 gm  
 (f) 1 kg 350 gm , 1350 gm

5. (a)  (b)  (c)  (d) 
- (e)  + 



**Exercise 5.7**

1. (a) 9 kg 660 gm (b) 7 kg 880 gm  
(c) 10 kg 752 gm (d) 4 kg 450 gm  
(e) 14 kg 175 gm (f) 10 kg 925 gm
2. (a) 3 kg 320 gm (b) 3 kg 330 gm  
(c) 5 kg 210 gm (d) 2 kg 145 gm  
(e) 3 kg 250 gm (f) 1 kg 145 gm
3. 7 kg 750 gm      4. 42 kg 250 gm      5. 76 kg 100 gm
6. 700 kg

**Exercise 5.8**

1. (a) litre (b) mililitre (c) litre (d) mililitre  
(e) litre (f) mililitre (g) mililitre (h) litre  
(i) litre (j) litre (k) mililitre (l) mililitre
2. (a) mililitre (b) mililitre (c) mililitre (d) litre  
(e) litre (f) litre
3. (a)  $700 \text{ ml} + 500 \text{ ml} = 1200 \text{ mm}$   
(b)  $900 \text{ ml} + 200 \text{ ml} = 1100 \text{ mm}$   
(c)  $400 \text{ ml} + 1000 \text{ ml} = 1400 \text{ mm}$   
(d)  $500 \text{ ml} + 700 \text{ ml} = 1200 \text{ mm}$   
(e)  $600 \text{ ml} + 800 \text{ ml} = 1400 \text{ mm}$   
(d)  $300 \text{ ml} + 900 \text{ ml} = 1200 \text{ mm}$

**Exercise 5.9**

1. (a) 9 litre 885 ml (b) 5 litre 430 ml (c) 9 litre 932 ml  
(d) 6 litre 465 ml (e) 11 litre 955 ml (f) 13 litre 550 ml
2. (a) 2 litre 155 ml (d) 1 litre 155 ml (e) 3 litre 733 ml  
(f) 4 litre 130 ml (f) 5 litre 050 ml (g) 2 litre 275 ml
3. 123 litre      4. 3 litre 500 ml      5. 275 litre

**Multiple Choice Questions (MCQ)**

1. (b)      2. (a)      3. (b)      4. (c)      5. (b)
6. (d)      7. (b)      8. (d)      9. (b)      10. (c)





# TIME

## OBJECTIVES

1. To tell the time in hour and minutes.
2. To understand about the concept of 12 hours and 24 hours clock.
3. To understand and use concept of am and pm
4. To understand the concept of addition and subtraction of time
5. To understand the calendar

## Introduction :

Seconds, minutes and hours are the units used for measuring the time. Considering age group of students in this chapter we will discuss only minutes and hours. But we should have basic knowledge of seconds also. Clock has three hands as shown in figure. The smaller hand is used to display hours. The bigger one displays the minutes. The third one (thinnest of all ) displays seconds. The speed of minute hand is more than speed of hour hand. But seconds hand runs faster than other hands. The face of a clock or watch is marked from 1 to 12 and between each two consecutive numbers the space is divided into five equal parts by putting four dots or dashes as shown in figure. The face of clock is divided in 60 equal parts. The time in which an hour hand covers distance from mark 1 to 2, minute hand covers 60 small dots whereas seconds hand completes 60 circles on the face of clock. So it can be summarised as :



One hour = 60 minutes  
 and 1 minute = 60 seconds  
 1 hour =  $60 \times 60$  seconds  
 = 3600 seconds

## Activity

### Tik Tak time

Ram and kiran are going to school and talking to each other.

**Ram to kiran** : How much time do you take to reach the school from home ?

**Kiran** : I (Thought fully) take 10 minutes to reach school on foot from my house.

**Ram** : Ok ! but I takes only 4 minutes to reach school from my house.

**Kiran** : (Surprisingly), it is impossible, your house is farther than mine from school.

**Ram** : I have noted time in my watch. I start for school at 7:00 a.m. and reach there when minute hand is on 4 means 7:04 a.m.

**Kiran** : No, Ram you are wrong. You reach school at 7:20 a.m.

**Ram** : How ?

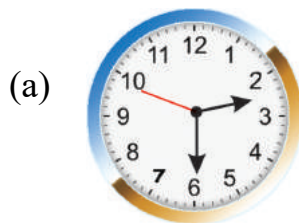
**Kiran** : Have you noticed small lines between numbers ?

**Ram** : Yes, then what ?

**Kiran** : There are 20 lines from 12 to 4. So it is 7:20 a.m. not 7:04 a.m.

### 6.1 1.1 To Read time in the intervals of five minutes

**Example 1 : Tell time from given clocks**

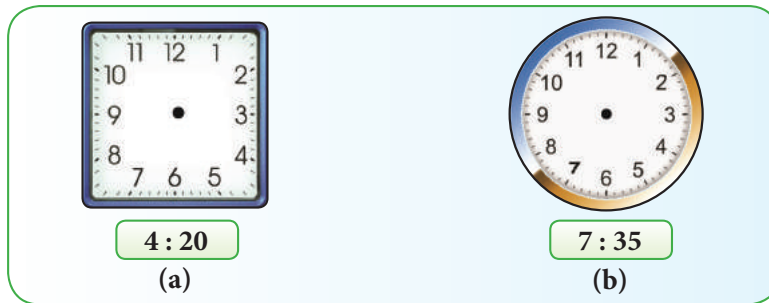


**Solution :** (a) 2:30 or 30 minutes past 2

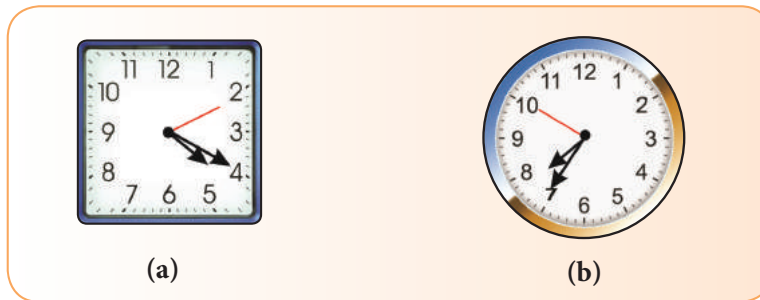


**Solution :** (b) 3:35 or thirty five minutes past 3

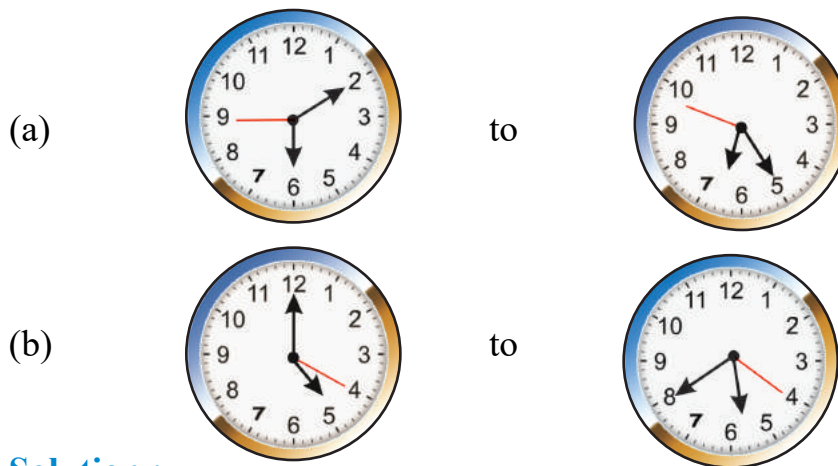
**Example 2 :** Show the given time on clock :



**Solution :**



**Example 3 :** How much time a minutes hand will take to reach the time shown between the first clock and the second clock.



**Solution :**

(a) 15 minutes

(b) 40 minutes



## 6.2 Read Time to Nearest Minutes

Look at the given clock. Hour hand is between 7 and 8. Minute hand one point ahead 4 .In previous activity we have already discussed that 4 means  $4 \times 5 = 20$ .

Minute hand has moved to one small line beyond 4

Therefore  $4 \times 5 + 1 = 21$ .

So the time in given clock is 7 : 21.



### Example 4 : The time from the given clock.

**Solution :** Minutes hand is between 8 and 9. It is two points ahead 8 of and smaller (hours) hand is between 1 and 2.

Hence minutes shown by bigger hand

$$= (8 \times 5) + 2$$

$$= 40 + 2$$

$$= 42 \text{ minutes}$$

So time on clock is 1:42 (forty two minutes past 1 )



### Example 5 : Tell the time from the given clock.

**Solution :** Minutes hand is between 11 and 12. It is one point ahead of 11. Smaller (hours) hand has passed ahead of 8 but nearer to 9 (minutes).

Hence minutes shown by bigger hand

$$= (11 \times 5) + 1$$

$$55 + 1$$

$$= 56 \text{ minutes}$$

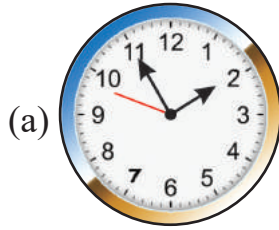
So time on clock is 8:56 ( 4 minutes to 9.)



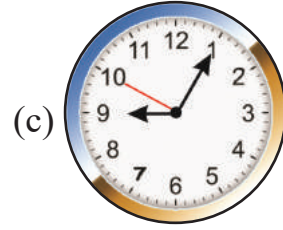


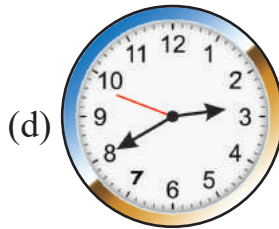
## Exercise 6.1

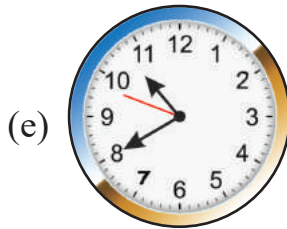
1. Write the time shown in each clock given below :

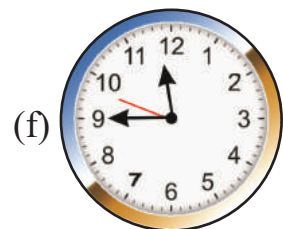













2. Draw clocks in your note book and show the time as given below :

(a) 4 : 20

(b) 7:35

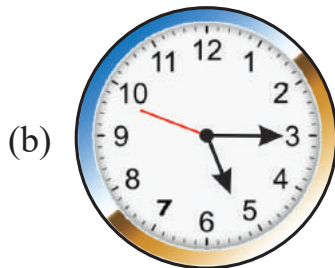
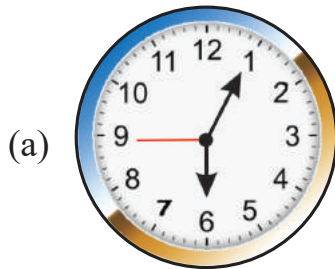
(c) 4 : 45

(d) 3:15

(e) 11:40

(f) 9:15

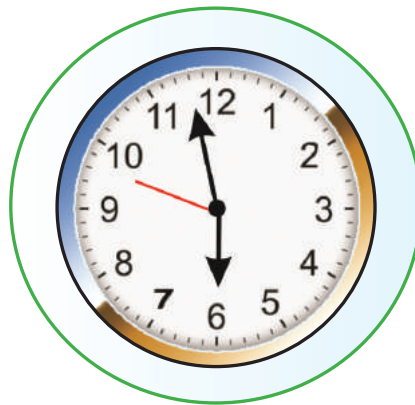
3. How many minutes a minute hand will take to reach the time shown between the first clock and the second clock.



4. Tell the time shown in the given clock and write.



5. Tell the time shown in the given clock and write.



### 6.3 Write the time using Signs

When we write time using signs, we use colon ( : ) before writing minutes. i.e. 40 minutes past 11 is written as 11:40. It is important to note that while writing time the use of only one dot ( . ) is wrong i.e. 11.40 in above example.

**Example 6 :** Write time with use of colon(:)

- (a) 47 minutes past 3
- (b) 30 minutes past 8
- (c) 30 minutes past 8
- (d) 35 minutes past 9

**Solution :** (a) 3:47

(b) 8:30

(c) 6:25

(d) 9:35





## 6.4 12-hour /24-hour clock notation

24 hour clock notation is popular in railways, hospitals, industries, airlines and Military services. It is used because there is no scope for error.

For example When we give medicines to a patient according to the 24 hour time table, according to 24 hour time table, it does not create any confusion about morning or evening time.

### Activity

Surinder's school is closed for summer vacations. Surinder went to his aunt's house during vacations. There he played with his cousins. He didn't want to go back. One day his father asked him to come back by 5:30 p.m. train. He did not want to go back so soon. Surinder wished to miss the train. Surinder reached the station at 5:15 with his aunt. When they reached the station the train had already left. He was very happy.

Can any student tell why they missed the train ? Actually their train had departed at 5:30 in the morning. His aunt told the station master that the time of departure of the train was 5:30 on the ticket.

**Station master** : Madam ! 5:30 means 5:30 in the morning.

**Aunty** : Because 24 hours clock is used at stations in which time remains same from 12 mid night upto 12 noon of the next day in 12 hour and 24 hour clock. But from 12 noon up to 12 mid night the time is shown by adding 12 hours in these 24 hour clocks. So you have reached the station at 17:15 not at 5:15.

### Remember :

We use a.m. to show the time starting from 12 mid night to 12 noon and p.m. is used to show the time from 12 noon till 12 in the mid night.





| Time                | Time on 12 hour clock | Time on 24 hour clock |
|---------------------|-----------------------|-----------------------|
| 2 o'clock afternoon | 2:00 PM               | 14:00 hours           |
| 3 o'clock afternoon | 3:00 PM               | 15:00 hours           |
| 3 o'clock afternoon | 3:30 PM               | 15:30 hours           |
| 7 o'clock morning   | 7:00 AM               | 07:00 hours           |
| 8 o'clock night     | 8:00 PM               | 20:00 hours           |
| 9 o'clock night     | 9:00 PM               | 21:00 hours           |

**Note :** When time is p.m. (after noon) then add 12 to change it in 24 hours notation.

**Example 7 :** Anshul gets up 6:00 in morning and goes for a walk. After taking a bath, he goes to school at 8 o'clock. His school closes at 2 o'clock. He plays at 6 o'clock and go to bed at 9:00 o'clock. Show the times mentioned above in A.M. or P.M.

**Solution :** 6:00 O'clock in the morning = 6.00 A.M.

8:00 O'clock in the morning = 8.00 A.M.

2:00 O'clock afternoon = 2.00 P.M.

6:00 O'clock in the evening = 6.00 P.M.

9:00 O'clock at night = 9.00 P.M.

**Example 8 :** Change the following time in 24 hours notation 9:00 PM.

(a) 8:00 A.M.                      (b) 8:00 O'clock in the evening

(c) 5:00 A.M.                      (d) 5:00 p.m.

**Solution :** (a) 8:00 O'clock in the morning = 08:00 hours

(b) 8:00 O'clock in the evening = 20:00 hours

(c) 5:00 a.m. = 05:00 hours

(d) 5:00 p.m. = 17:00 hours



**Example 9 :** Write time given below in figures :

- (a) quarter to five
- (b) quarter past four
- (c) half past seven

**Solution :** (a) quarter to five : 4:45  
(b) quarter past four 4:15  
(c) half past seven 7:30

### Exercise 6.2

**1. Fill in the blanks :**

- (a) 15 minutes to 9 = ..... minutes past 8.
- (b) Quarter to 6 = ... minutes past 5.
- (c) Half to 9 = ... minutes past 9.
- (d) 20 minutes to 8 = ..... minutes past 7.

**2. Write afternoon times in figures :**

- (a) 15 minutes to 5
- (b) 15 minutes past 4
- (c) 35 minutes to 9

**3. Write the time in a.m. or p.m.**

- (a) 5:20 in the morning
- (b) 6:40 in the evening
- (c) 9:35 at night
- (d) 11:10 in the morning
- (e) 8:40 in the morning

**4. Change the following in 24 hours notation :**

- (a) 9:45 in the morning
- (b) 9:45 at night
- (c) 10:15 in the morning
- (d) 10:15 at night
- (e) 3:20 in the morning
- (f) 3:20 afternoon

**5. Change 24 hours notation into 12 hours with use of a.m. and p.m.**

- (a) 08:48
- (b) 20:48
- (c) 13:13
- (d) 07:20
- (e) 06:00
- (f) 19:30

## 6.5 Addition and Subtraction of time

### 6.5.1 Rules : Addition of time

1. Write hours and minutes in different columns.
2. Firstly add minutes. If the sum is greater than 60 then convert minutes into hours.
3. Write hours in hours column and minutes in minutes column.
4. Now add hours and write in hours column.
5. We will get the total time in hours and minutes by adding them.

**Example 9 :** Add 12 hours and 27 minutes in 4 hours and 14 minutes.

**Solution :**

| hours | minutes |
|-------|---------|
| 12    | 27      |
| + 4   | 14      |
| 16    | 41      |

=16 hours 41 minutes.

**Example 10 :** Add 12 hour and 28 minutes in 7 hours and 47 minutes.

**Solution :**

| hours | minutes |
|-------|---------|
| 12    | 28      |
| + 7   | 47      |
| 19    | 75      |

75 minutes  
= 60 minutes +15 minutes  
= 1hour 15 minutes  
= 19 hours and 1 hour 15 minutes  
= 19 + 1 hour 15 minutes  
= 20 hours 15 minutes.

### 6.5.2 Rules : Subtraction of time

1. Write hours and minutes in column.
2. Subtract minutes from minutes. If the minutes to be subtracted are more than the given minutes, then take 1 hours from hours column, which is equal to 60 minutes and subtract.
3. Now subtract hours from remaining hours given in hours column.



**Example 11 :** Subtract 5 hours 28 minutes from 7 hours 35 minutes.

**Solution :**

| hours | minutes |
|-------|---------|
| 7     | 35      |
| - 5   | 28      |
| 2     | 07      |

= 2 hours 7 minutes

**Example 12 :** Subtract 12 hours and 25 minutes from 8 hours 44 minutes.

**Solution :**

| hours          | minutes        |
|----------------|----------------|
| 11             | 85 (60 + 25)   |
| <del>+12</del> | <del>-25</del> |
| 8              | 44             |
| 3              | 41             |

= 3 hours 41 minutes

**Example 13 :** A marriage function starts at 9:30 p.m. and ends at 4:15 a.m. Find the total time of the function (total time interval).

**Solution :**

|                                      |                      |
|--------------------------------------|----------------------|
| Time from 9:30 to 10:00              | = 30 minutes         |
| Time from 10:00p.m. to 12:00midnight | = 2 hours            |
| Time from 12:00 mid night to 4:00 am | = 4 hours            |
| Time from 4:00 a.m. to 4:15 a.m.     | = 15 minutes         |
| Total time (after addition)          | = 6 hours 45 minutes |
| Total time of the marriage function  | = 6 hours 45 minutes |

### Exercise 6.3

1. **What is the time after 2 hours?**

- |              |                |
|--------------|----------------|
| (a) 9:20 AM  | (b) 12:00 noon |
| (c) 11:15 PM | (d) 5:10 PM    |
| (e) 3:30 PM  | (f) 7:35 AM    |

**2. What is the time 1 hour before the given time?**

- (a) 12.00 mid night
- (b) 3.30 afternoon
- (c) 11.30 before noon
- (d) 4.00 before noon
- (e) 9:00 afternoon
- (f) 8:50 before noon

**3. Add :**

- (a) 2 hour 15 minutes in 3 hours 28 minutes
- (b) 15 hour 28 minutes in 4 hours 12 minutes
- (c) 8 hour 48 minutes in 3 hours 22 minutes
- (d) 4 hour 32 minutes in 3 hours 38 minutes

**4. Subtract :**

- (a) 3 hours 27 minutes from 1 hours 14 minutes
  - (b) 15 hours 14 minutes from 3 hours 5 minutes
  - (c) 12 hours 17 minutes from 4 hours 27 minutes
  - (d) 9 hours 28 minutes from 3 hours 38 minutes
5. A train starts at 7:40 A.M. and reaches its destination at 2:15 p.m. How much time it will takes to complete its journey. Find out the journey time interval.
  6. Shikha starts her journey by car at 6:40 A.M. and completes her journey at 3:50 p.m. How long did she drive the car ?
  7. A cricket match starts at 9:30 p.m. and ends at 1:25 a.m. For how long did the match continue ?
  8. Sunny starts his bhangra practice at 4:15 p.m. and finishes at 6:10 p.m. For how long did he practice for bhangra ?

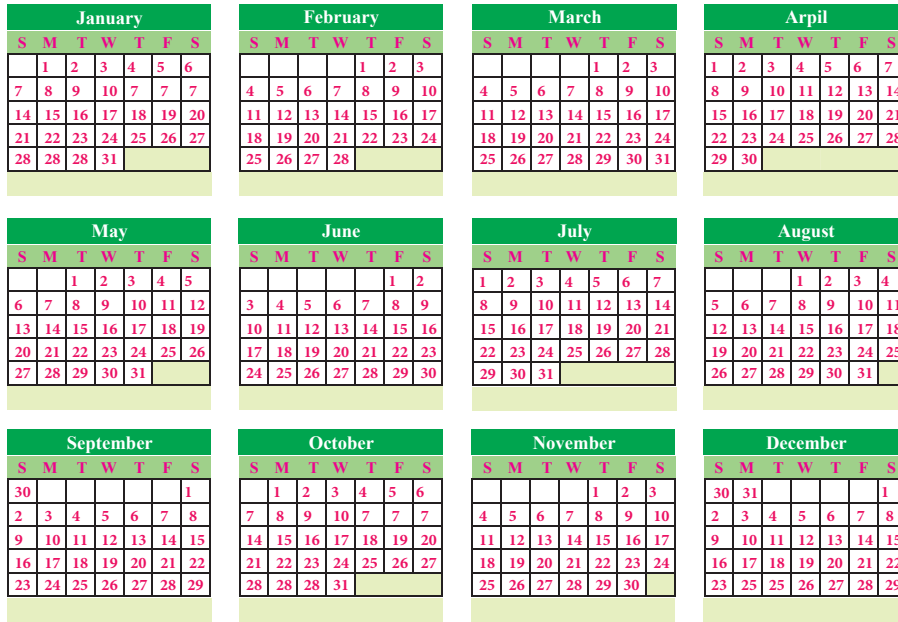
**6.6 Calender**

There are seven days in a week.

- |             |            |              |
|-------------|------------|--------------|
| 1. Monday   | 2. Tuesday | 3. Wednesday |
| 4. Thursday | 5. Friday  | 6. Saturday  |
| 7. Sunday   |            |              |

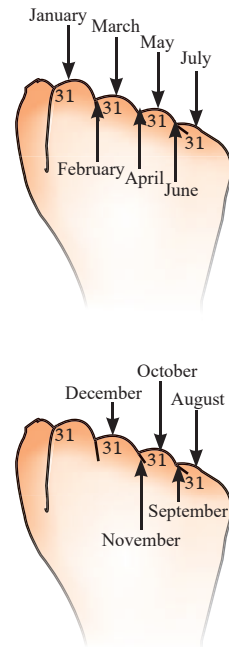


# 2018



There are 12 months in a year

| Sr. No. | Months    | Number of Days |
|---------|-----------|----------------|
| 1.      | January   | 31             |
| 2.      | February  | 28 or 29       |
| 3.      | March     | 31             |
| 4.      | April     | 30             |
| 5.      | May       | 31             |
| 6.      | June      | 30             |
| 7.      | July      | 31             |
| 8.      | August    | 31             |
| 9.      | September | 30             |
| 10.     | October   | 31             |
| 11.     | November  | 30             |
| 12.     | December  | 31             |



There are 12 months in a year. A month contains 4 weeks  
Every week has seven days. Which are named after Gods of Greeks





## Activity

### Rani's Diary

Let us go to see my sister.



Mom I brought sweets for Karina.

But she cannot eat. As she is too small (an infant).



she cannot talk yet very small.



As she grows up, she will start doing all these things.



January, February, March, April, May, June, July, August, September, October, November, December.

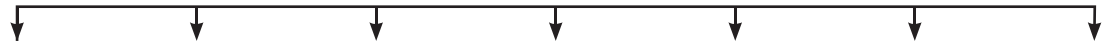
Here are some pages of Rani's diary, I will note down in my diary when she first starts talking, eating and walking.





1. Mark these in the correct order on Karina’s timeline.

5/3/15



born

2. Karina cut her first tooth in September. How many months old she was then ? .....
3. How many months have passed from March to September ? .....
4. How old was Karina when :
  - (a) She first sat up .....
  - (b) She got her first tooth .....
5. What did she do first ?
  - (a) Walking or eating banana .....
  - (b) Crawling or standing .....



Rani had a pet puppy at her home. It opened his eyes after 2 weeks Rani noticed its growth as below :



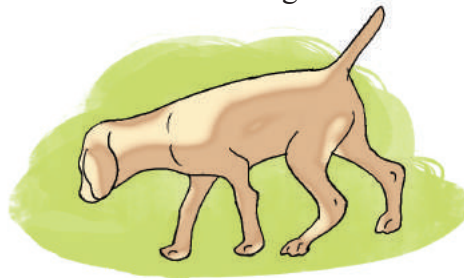
After 3 weeks, it got teeth and started taking food.



After 4 weeks, it started moving around but wobbling.



It got all its teeth in seven months.



After one year it was grown up in all ways and After one years, it was fully grown.



Compare the following activities of Karina and Rani’s pup .

|                               | Karina (age) | Pup (age) |
|-------------------------------|--------------|-----------|
| Started moving                |              |           |
| First time took his /her meal |              |           |
| Got first teeth               |              |           |

**Write the following dates in words (as shown) :**

5/5/16                      5 May 2016 \_\_\_\_\_

20/5/16                      \_\_\_\_\_

7/6/16                      \_\_\_\_\_

1/1/17                      \_\_\_\_\_

**Write these dates in numbers :**

1 June 2006                      \_\_\_\_\_

30 May 2006                      \_\_\_\_\_

10 August 2007                      \_\_\_\_\_

**Which long holidays do you get in school ? Fill the table, write the dates.**

|                            | Date       |          | Number of days |
|----------------------------|------------|----------|----------------|
|                            | From ..... | To ..... |                |
| Summer vacation            |            |          |                |
| Autumn break               |            |          |                |
| Winter break               |            |          |                |
| Holidays after final exams |            |          |                |

### 6.6.1 More about Calendar

1. There are 365 days in a year. Generally February has 28 days.



2. There are 366 days in a leap year and February has 29 days in a leap year.
3. If the year is divisible by 4. This is a leap year.
4. If a year is divisible by 100, it is called Century. If a century is divisible by 400 it is called leap year.
5. A year = 52 weeks +1 day (divide 365 by 7).
6. A Leap year = 52 weeks + 2 days (divide 366 by 7).
7. In a year 1st January and 31st December falls on the same day (except leap year) check it in the calendar.

**Example 13 : Find the Leap years.**

- (a) 1900            (b) 2000            (c) 2018            (d) 2016

**Solution :** (a) Year 1900 is a century. Divide it by 400 to know whether it is a leap year or not.

$$\begin{array}{r} 400 \overline{)1900} \overline{)4} \\ \underline{1600} \\ 300 \text{ Balance} \end{array}$$

Because 1900 is not divided by 400 exactly so 1900 is not leap year.

(b) Year 2000 is a century. Divide it by 400 to know whether it is a leap year or not

$$\begin{array}{r} 400 \overline{)2000} \overline{)5} \\ \underline{2000} \\ \times \end{array}$$

Because 2000 is divided by 400 exactly so 2000 is a leap year.

(c) Year 2018 is not a century. Divide it by 4 to know whether it is a leap year or not.

$$\begin{array}{r} 4 \overline{)2018} \overline{)504} \\ \underline{20} \\ \times 1 \\ \underline{0} \\ 18 \\ \underline{16} \\ 2 \text{ Balance} \end{array}$$

Because 2018 is not divided by 4 exactly so 2018 is not leap year.



(d) Year 2016 is not a century. Divide it by 4 to know whether it is a leap year or not.

Because 2016 is divided by 4 exactly so 2016 is a leap year.

$$4 \overline{) 2016} \begin{array}{r} 504 \\ \underline{20} \\ 16 \\ \underline{16} \\ 0 \end{array}$$

Look at the month of February in the Calendars of 2016 and 2018 and count the days there. What conclusion did you draw. Share your result with your teacher.

### Exercise 6.4

1. Write the names of the months which starts with “J”.
2. Write the name of the months having 31 days.
3. Write the names of the months which have less than 31 days.
4. In which month of year do you celebrate your birthday ?
5. In which months you have summer vacations and winter vacations ?
6. Shivansh went to visit historical places with his uncle from 28 May to 15 August. How many days he spent on vacation ? (28 May and 15 August both the days included).
7. What are the total number of days from 26 January 2018 to 15 August 2018 (Both days included).
8. (a) What are the total number of days from 6 June to 22 November.  
 (b) Number of winter holidays from 24 December to 31 December.  
 (c) Holidays start from June 3. How many holidays are there upto 4 July ?



# 2018

| January |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|
| S       | M  | T  | W  | T  | F  | S  |
|         | 1  | 2  | 3  | 4  | 5  | 6  |
| 7       | 8  | 9  | 10 | 11 | 12 | 13 |
| 14      | 15 | 16 | 17 | 18 | 19 | 20 |
| 21      | 22 | 23 | 24 | 25 | 26 | 27 |
| 28      | 29 | 30 | 31 |    |    |    |

| February |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|
| S        | M  | T  | W  | T  | F  | S  |
|          |    |    |    | 1  | 2  | 3  |
| 4        | 5  | 6  | 7  | 8  | 9  | 10 |
| 11       | 12 | 13 | 14 | 15 | 16 | 17 |
| 18       | 19 | 20 | 21 | 22 | 23 | 24 |
| 25       | 26 | 27 | 28 |    |    |    |

| March |    |    |    |    |    |    |
|-------|----|----|----|----|----|----|
| S     | M  | T  | W  | T  | F  | S  |
|       |    |    |    | 1  | 2  | 3  |
| 4     | 5  | 6  | 7  | 8  | 9  | 10 |
| 11    | 12 | 13 | 14 | 15 | 16 | 17 |
| 18    | 19 | 20 | 21 | 22 | 23 | 24 |
| 25    | 26 | 27 | 28 | 29 | 30 | 31 |

| April |    |    |    |    |    |    |
|-------|----|----|----|----|----|----|
| S     | M  | T  | W  | T  | F  | S  |
| 1     | 2  | 3  | 4  | 5  | 6  | 7  |
| 8     | 9  | 10 | 11 | 12 | 13 | 14 |
| 15    | 16 | 17 | 18 | 19 | 20 | 21 |
| 22    | 23 | 24 | 25 | 26 | 27 | 28 |
| 29    | 30 |    |    |    |    |    |

| May |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| S   | M  | T  | W  | T  | F  | S  |
|     |    | 1  | 2  | 3  | 4  | 5  |
| 6   | 7  | 8  | 9  | 10 | 11 | 12 |
| 13  | 14 | 15 | 16 | 17 | 18 | 19 |
| 20  | 21 | 22 | 23 | 24 | 25 | 26 |
| 27  | 28 | 29 | 30 | 31 |    |    |

| June |    |    |    |    |    |    |
|------|----|----|----|----|----|----|
| S    | M  | T  | W  | T  | F  | S  |
|      |    |    |    | 1  | 2  |    |
| 3    | 4  | 5  | 6  | 7  | 8  | 9  |
| 10   | 11 | 12 | 13 | 14 | 15 | 16 |
| 17   | 18 | 19 | 20 | 21 | 22 | 23 |
| 24   | 25 | 26 | 27 | 28 | 29 | 30 |

| July |    |    |    |    |    |    |
|------|----|----|----|----|----|----|
| S    | M  | T  | W  | T  | F  | S  |
| 1    | 2  | 3  | 4  | 5  | 6  | 7  |
| 8    | 9  | 10 | 11 | 12 | 13 | 14 |
| 15   | 16 | 17 | 18 | 19 | 20 | 21 |
| 22   | 23 | 24 | 25 | 26 | 27 | 28 |
| 29   | 30 | 31 |    |    |    |    |

| August |    |    |    |    |    |    |
|--------|----|----|----|----|----|----|
| S      | M  | T  | W  | T  | F  | S  |
|        |    |    | 1  | 2  | 3  | 4  |
| 5      | 6  | 7  | 8  | 9  | 10 | 11 |
| 12     | 13 | 14 | 15 | 16 | 17 | 18 |
| 19     | 20 | 21 | 22 | 23 | 24 | 25 |
| 26     | 27 | 28 | 29 | 30 | 31 |    |

| September |    |    |    |    |    |    |
|-----------|----|----|----|----|----|----|
| S         | M  | T  | W  | T  | F  | S  |
|           |    |    |    |    |    | 1  |
| 2         | 3  | 4  | 5  | 6  | 7  | 8  |
| 9         | 10 | 11 | 12 | 13 | 14 | 15 |
| 16        | 17 | 18 | 19 | 20 | 21 | 22 |
| 23        | 24 | 25 | 26 | 27 | 28 | 29 |
| 30        |    |    |    |    |    |    |

| October |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|
| S       | M  | T  | W  | T  | F  | S  |
|         | 1  | 2  | 3  | 4  | 5  | 6  |
| 7       | 8  | 9  | 10 | 11 | 12 | 13 |
| 14      | 15 | 16 | 17 | 18 | 19 | 20 |
| 21      | 22 | 23 | 24 | 25 | 26 | 27 |
| 28      | 29 | 30 | 31 |    |    |    |

| November |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|
| S        | M  | T  | W  | T  | F  | S  |
|          |    |    |    | 1  | 2  | 3  |
| 4        | 5  | 6  | 7  | 8  | 9  | 10 |
| 11       | 12 | 13 | 14 | 15 | 16 | 17 |
| 18       | 19 | 20 | 21 | 22 | 23 | 24 |
| 25       | 26 | 27 | 28 | 29 | 30 |    |

| December |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|
| S        | M  | T  | W  | T  | F  | S  |
|          |    |    |    |    |    | 1  |
| 2        | 3  | 4  | 5  | 6  | 7  | 8  |
| 9        | 10 | 11 | 12 | 13 | 14 | 15 |
| 16       | 17 | 18 | 19 | 20 | 21 | 22 |
| 23       | 24 | 25 | 26 | 27 | 28 | 29 |
| 30       | 31 |    |    |    |    |    |

# 2016

| January |    |    |    |    |    |     |
|---------|----|----|----|----|----|-----|
| S       | M  | T  | W  | T  | F  | S   |
|         |    |    |    |    |    | 1 2 |
| 3       | 4  | 5  | 6  | 7  | 8  | 9   |
| 10      | 11 | 12 | 13 | 14 | 15 | 16  |
| 17      | 18 | 19 | 20 | 21 | 22 | 23  |
| 24      | 25 | 26 | 27 | 28 | 29 | 30  |
| 31      |    |    |    |    |    |     |

| February |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|
| S        | M  | T  | W  | T  | F  | S  |
|          | 1  | 2  | 3  | 4  | 5  | 6  |
| 7        | 8  | 9  | 10 | 11 | 12 | 13 |
| 14       | 15 | 16 | 17 | 18 | 19 | 20 |
| 21       | 22 | 23 | 24 | 25 | 26 | 27 |
| 28       | 29 |    |    |    |    |    |

| March |    |    |    |    |    |    |
|-------|----|----|----|----|----|----|
| S     | M  | T  | W  | T  | F  | S  |
|       |    | 1  | 2  | 3  | 4  | 5  |
| 6     | 7  | 8  | 9  | 10 | 11 | 12 |
| 13    | 14 | 15 | 16 | 17 | 18 | 19 |
| 20    | 21 | 22 | 23 | 24 | 25 | 26 |
| 27    | 28 | 29 | 30 | 31 |    |    |

| April |    |    |    |    |    |     |
|-------|----|----|----|----|----|-----|
| S     | M  | T  | W  | T  | F  | S   |
|       |    |    |    |    |    | 1 2 |
| 3     | 4  | 5  | 6  | 7  | 8  | 9   |
| 10    | 11 | 12 | 13 | 14 | 15 | 16  |
| 17    | 18 | 19 | 20 | 21 | 22 | 23  |
| 24    | 25 | 26 | 27 | 28 | 29 | 30  |

| May |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| S   | M  | T  | W  | T  | F  | S  |
| 1   | 2  | 3  | 4  | 5  | 6  | 7  |
| 8   | 9  | 10 | 11 | 12 | 13 | 14 |
| 15  | 16 | 17 | 18 | 19 | 20 | 21 |
| 22  | 23 | 24 | 25 | 26 | 27 | 28 |
| 29  | 30 | 31 |    |    |    |    |

| June |    |    |    |    |    |    |
|------|----|----|----|----|----|----|
| S    | M  | T  | W  | T  | F  | S  |
|      |    |    | 1  | 2  | 3  | 4  |
| 5    | 6  | 7  | 8  | 9  | 10 | 11 |
| 12   | 13 | 14 | 15 | 16 | 17 | 18 |
| 19   | 20 | 21 | 22 | 23 | 24 | 25 |
| 26   | 27 | 28 | 29 | 30 |    |    |

| July |    |    |    |    |    |     |
|------|----|----|----|----|----|-----|
| S    | M  | T  | W  | T  | F  | S   |
|      |    |    |    |    |    | 1 2 |
| 3    | 4  | 5  | 6  | 7  | 8  | 9   |
| 10   | 11 | 12 | 13 | 14 | 15 | 16  |
| 17   | 18 | 19 | 20 | 21 | 22 | 23  |
| 24   | 25 | 26 | 27 | 28 | 29 | 30  |
| 31   |    |    |    |    |    |     |

| August |    |    |    |    |    |    |
|--------|----|----|----|----|----|----|
| S      | M  | T  | W  | T  | F  | S  |
|        | 1  | 2  | 3  | 4  | 5  | 6  |
| 7      | 8  | 9  | 10 | 11 | 12 | 13 |
| 14     | 15 | 16 | 17 | 18 | 19 | 20 |
| 21     | 22 | 23 | 24 | 25 | 26 | 27 |
| 28     | 29 | 30 | 31 |    |    |    |

| September |    |    |    |    |    |    |
|-----------|----|----|----|----|----|----|
| S         | M  | T  | W  | T  | F  | S  |
|           |    |    |    | 1  | 2  | 3  |
| 4         | 5  | 6  | 7  | 8  | 9  | 10 |
| 11        | 12 | 13 | 14 | 15 | 16 | 17 |
| 18        | 19 | 20 | 21 | 22 | 23 | 24 |
| 25        | 26 | 27 | 28 | 29 | 30 |    |

| October |    |    |    |    |    |    |
|---------|----|----|----|----|----|----|
| S       | M  | T  | W  | T  | F  | S  |
|         |    |    |    |    |    | 1  |
| 2       | 3  | 4  | 5  | 6  | 7  | 8  |
| 9       | 10 | 11 | 12 | 13 | 14 | 15 |
| 16      | 17 | 18 | 19 | 20 | 21 | 22 |
| 23      | 24 | 25 | 26 | 27 | 28 | 29 |
| 30      | 31 |    |    |    |    |    |

| November |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|
| S        | M  | T  | W  | T  | F  | S  |
|          |    | 1  | 2  | 3  | 4  | 5  |
| 6        | 7  | 8  | 9  | 10 | 11 | 12 |
| 13       | 14 | 15 | 16 | 17 | 18 | 19 |
| 20       | 21 | 22 | 23 | 24 | 25 | 26 |
| 27       | 28 | 29 | 30 |    |    |    |

| December |    |    |    |    |    |     |
|----------|----|----|----|----|----|-----|
| S        | M  | T  | W  | T  | F  | S   |
|          |    |    |    |    | 1  | 2 3 |
| 4        | 5  | 6  | 7  | 8  | 9  | 10  |
| 11       | 12 | 13 | 14 | 15 | 16 | 17  |
| 18       | 19 | 20 | 21 | 22 | 23 | 24  |
| 25       | 26 | 27 | 28 | 29 | 30 | 31  |



## Exercise 6.5

Answer the following questions from Calendar of the years 2016 and 2018.

1. How many Sundays are there in January 2016 and January 2018 ?
2. On which day the Independence day falls in the Year 2018 ?
3. What is date on first Monday in April 2018 ?
4. How many days are there in February 2016 and February 2018. What difference did you notice ?
5. What is the date on last Friday of the Year ?
6. Which is the day on 1 January 2018 and 31 December 2018 ?
7. Write the name of months which have 31 days.
8. From the calendar find the date, month and day of your birthday.



### Multiple Choice Questions (MCQ)

1. The number of hours in a day are :  
(a) 24                      (b) 12                      (c) 18                      (d) 16
2. How many days are there in a week ?  
(a) 6                      (b) 8                      (c) 7                      (d) 21
3. Which of the following is a leap year ?  
(a) 2100                      (b) 2000                      (c) 2200                      (d) 1900
4. Which of the following is a leap year ?  
(a) 2013                      (b) 2014                      (c) 2015                      (d) 2016
5. How many days are in a leap year ?  
(a) 365 days                      (b) 361 days                      (c) 366 days                      (d) 360 days
6. Which is 6th and 8th month of the Year ?  
(a) May and July  
(b) June and September  
(c) June and August  
(d) August and May



### Learning Outcomes

The students will be able to achieve the following knowledge outcomes :

- Child is able to read minutes and hours.
- Child is able to understand 12 hours and 24 hours notation.
- Child is able to use a.m. and p.m.
- Child is able to understand and use calendar.

### Answer Key

#### Exercise 6.1

1. (a) 1:55                      (b) 7:10                      (c) 9:05  
(d) 8:15                      (e) 8:50                      (f) 9:00
3. (a) 15 mints                      (b) 25 mints
4. 4:18    5. 5:58

#### Exercise 6.2

1. (a) 45                      (b) 45                      (c) 30                      (d) 40
2. (a) 4:45PM                      (b) 4:15PM                      (c) 8:25 PM
3. (a) 5:20 AM                      (b) 6:40 PM                      (c) 9:35 PM  
(d) 11:00 AM                      (e) 8:40 AM
4. (a) 09:45 hours                      (b) 21:45 hours                      (c) 10:15 hours  
(d) 22:15 hours                      (e) 03:20 hours                      (f) 15:20 hours
5. (a) 8:48 AM                      (b) 8:48 PM                      (c) 1:13 PM  
(d) 7:20 AM                      (e) 6:00 AM                      (f) 7:30 PM



### Exercise 6.3

1. (a) 11:20 AM (b) 2:00 PM (c) 1:15 AM  
(d) 7:10 PM (e) 5:30 PM (f) 9:35 AM
2. (a) 11:00 PM (b) 2:30 PM (c) 10:00 AM  
(d) 3:00 AM (e) 8:00 PM (f) 7:50 AM
3. (a) 5 hours 43 mints (b) 19 hours 40 mints  
(c) 12 hours 50 mints (d) 8 hours 20 mints
4. (a) 2 hours 14 mints (b) 12 hours 9 mints  
(c) 07 hours 50 mints (d) 5 hours 50 mints
5. 6 hours 35 mints 6. 9 hours 10 mints
7. 3 hours 55 mints 8. 1 hour 55 mints

### Exercise 6.4

1. January, June, July
2. January, February, March, May, July, August, October, December
3. February
5. Summer holidays = June  
Winter holidays = December
6. 80 days
7. 202 days
8. (a) 170 (b) 8 (c) 32

### Exercise 6.5

1. 5, 4 2. Wednesday 3. 2
4. 29, 28 5. 28 6. Monday
7. January, March, May, July, August, October, December

### Multiple Choice Questions (MCQ)

1. (a) 2. (c) 3. (b)
4. (d) 5. (c) 6. (c)







# SHAPES

**OBJECTIVES :-** The students should be able to :

1. To draw a circle with given radius with the help of compass
2. To understand Radius, Centre and Diameter of a circle.
3. To make different figures with Tangram
4. To recognize different mathematical patterns on the floor of the house, footpath and buildings
5. To make Cube and Cuboids with the help of a paper grid.
6. To make Side, Elevation and Plane of simple patterns with their understanding which they know.

## 7.1. Shapes

Look at some shapes you daily see around.



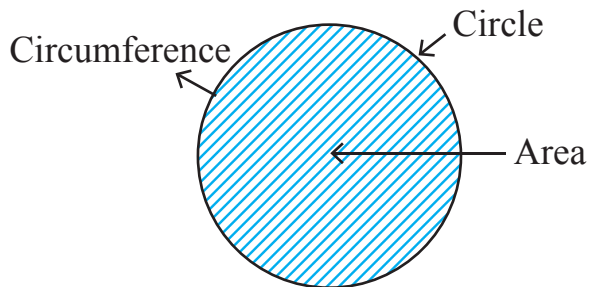
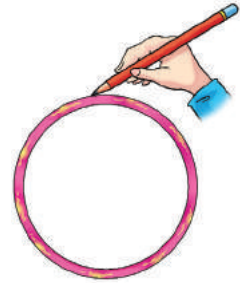
All these things are circular in shape

Now the question is 'What is a Circle'. Let us understand a circle.



## Activity

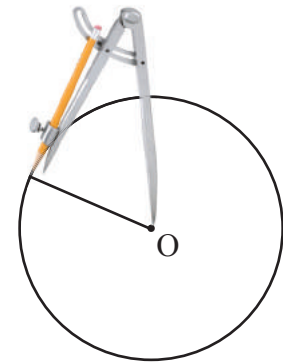
Place a bangle on a piece of paper. Draw a boundary around it with pencil. The figure formed is a circle. The path on which the pencil has moved around the bangle is its circumference and the inner portion is its area.



- Remember there is no edge, no vertex and no end point of a circle

### 7.2. To draw a circle with the compass :

We have different tools in our geometry box which are used to make different geometric shapes, the Compass is the main tool. A compass is an instrument used to draw a circle. It consists of two movable arms hinged together where one arm has a pointed end and the other arm holds the pencil. Now draw a circle using a compass.



#### Remember

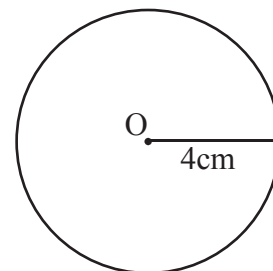
- Distance between both pointed ends the compass is radius.

## Activity

Let us Draw a circle of 4cm radius

### Steps of construction:

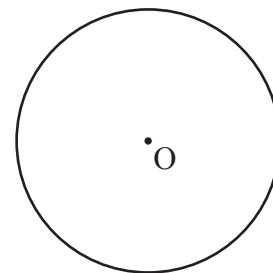
1. Fix a pencil in the compass.
2. Use a ruler to the and measure the distance of the pointed points of the compass at 4 cm.
3. Place the point of the compass at the centre of the circle.
4. Draw the circle by moving the compass in any side clockwise/anticlock wise till you reach at starting point.
5. The figure formed is a circle with a radius of 4 cms.



### 7.3 Concept related to the circle

#### Centre:

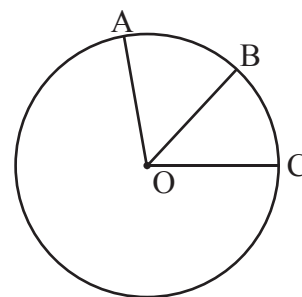
The point let us suppose 'O' on which the pointed leg of compass is placed to draw a circle is called the centre of the circle.



#### Radius :

The radius is the distance from the centre of the circle to any point on its circumference ..In this figure, OA,OB, and OC are the radii of the circle.

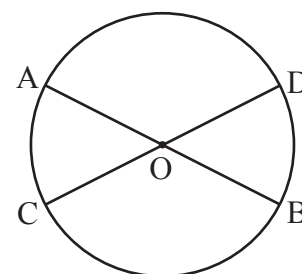
- All the radii are equal so  $OA=OB=OC$
- We can draw infinite number of radii in a circle.



#### Diameter :

The line segment which passes through the circle and has its end points on the circumference of the circle is called a diameter.

All the diameters of a circle are equal.

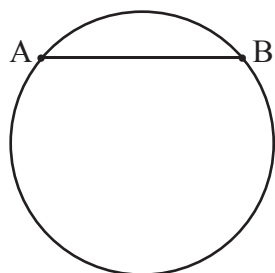


- Always remember  
The diameter of the circle is twice the radius,  
*i.e.*, Diameter =  $2 \times$  radius.
- We can also say that Radius is half the diameter.

### Chord :

A chord is a line segment that joins two points on the circumference of a circle

In given figure, AB is a chord.



### Remember

Diameter is the longest chord of a circle.

**Example 1 :** The diameter of a circle is 10cm. Find its radius.

**Solution :** Diameter of circle = 10 cm

We know that radius is half of the diameter.

$$\text{That means, Radius of circle} = \frac{1}{2} \times \text{diameter}$$

$$\begin{aligned} \text{Radius of circle} &= \frac{1}{2} \times 10 \text{ cm} \\ &= 5 \text{ cm} \end{aligned}$$

Therefore, the radius of the circle = 5 cm

**Example 2 :** The radius of a circle is 2cm. Find its diameter.

**Solution :** Radius of circle = 4 cm

We know that the diameter is double the radius.

So, Diameter of circle =  $2 \times$  radius

$$\text{Diameter} = 2 \times 4 \text{ cm}$$

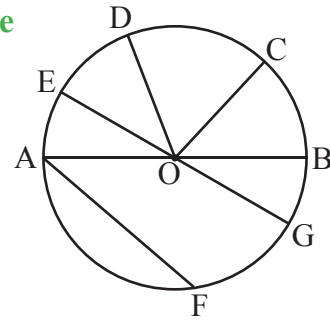
$$\text{Diameter} = 8 \text{ cm}$$

Therefore the diameter of the circle is 8 cm.



## Exercise 7.1

1. From the given figure write the names of the following ?



- (a) radius
- (b) diameter
- (c) chords

2. Find the radius of a circle whose diameter is:

- (a) 6 cm
- (b) 8.2 cm
- (c) 8.6 cm

3. Find the diameter of a circle whose radius is:

- (a) 13 cm
- (b) 21 cm
- (c) 17 cm
- (d) 8 cm

4. With the help of a compass draw circles whose radius is :

- (a) 5 cm
- (b) 3 cm
- (c) 2 cm
- (d) 3.5 cm
- (e) 4.6 cm
- (f) 2.5 cm

5. Which is the longest chord of a circle?

6. Fill in the blanks:

- (a) A line segment which joins centre of a circle with any point on circumference is called.....
- (b) Diameter of a circle = .....x radius
- (c) The longest chord of a circle is called .....of circle
- (d) All the radii of circle are .....in length

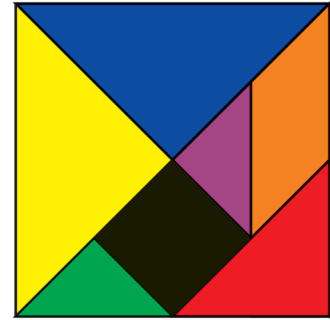
7. Fill the table

|                 |       |       |       |       |       |
|-----------------|-------|-------|-------|-------|-------|
| <b>Radius</b>   | 4 cm  | ..... | ..... | 6 cm  | 11 cm |
| <b>Diameter</b> | ..... | 16 cm | 10 cm | ..... | ..... |



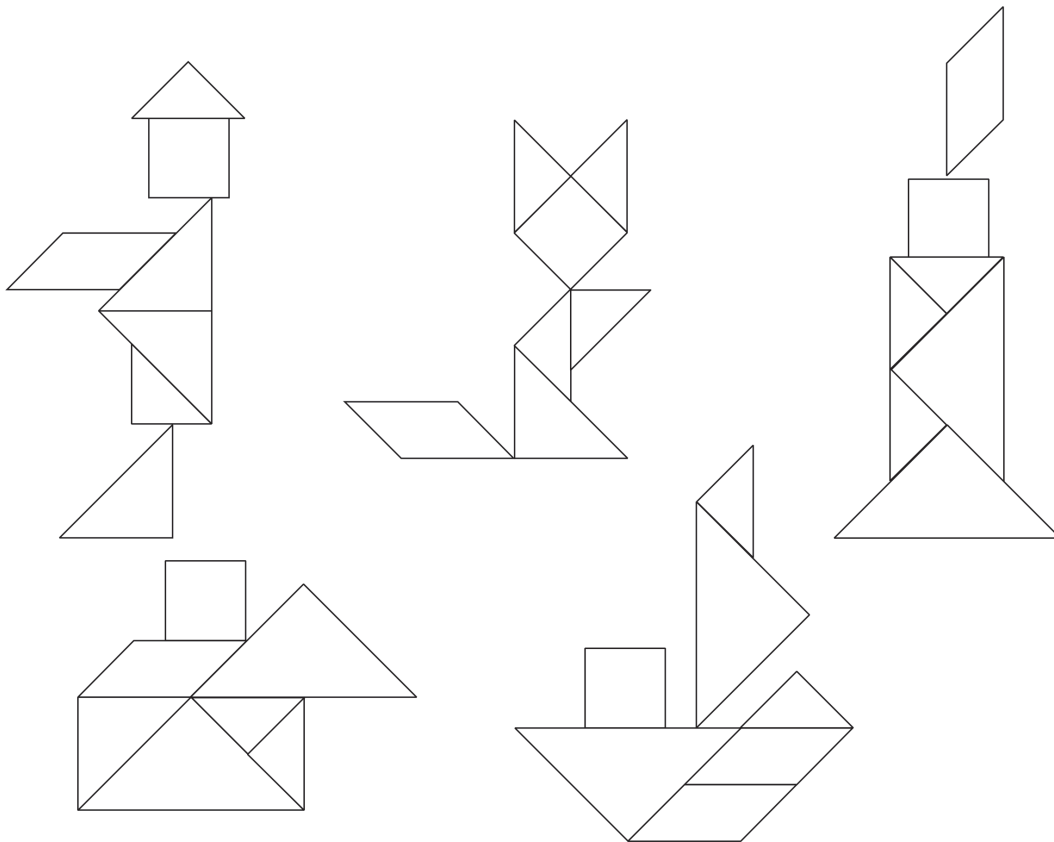
## 7.4 Tangram

Tangram is a Chinese puzzle. The given figure of square is divided into seven flat shapes which are a parallelogram, a square and 5 triangles. The square figure ‘formed with these seven pieces is known as seven piece tangram.



We can make several pictures with these 7 shapes.

Some examples are given below;

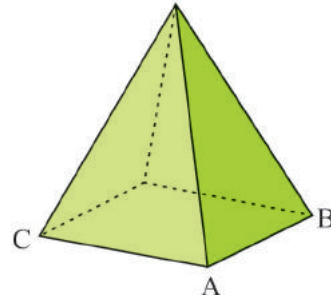
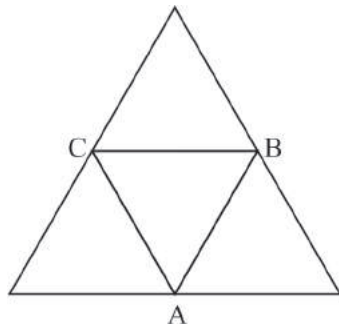


## 7.5 To Make 4 face ,5 face and 6 face figures

On a simple piece of paper we can draw 4 face, 5 face and 6 face figures

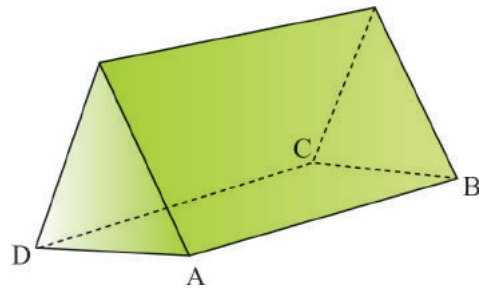
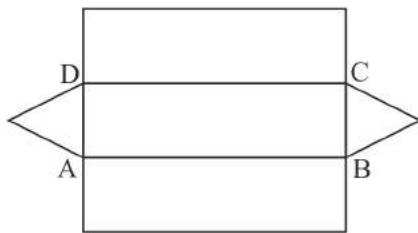
### To make 4 faced figure/pyramid

Draw a diagram as shown below and cut it . Now fold the paper along the side AB, BC, CD and DA and form a 4 faced pyramid.



### Making of 5 faced figure/rectangular prism

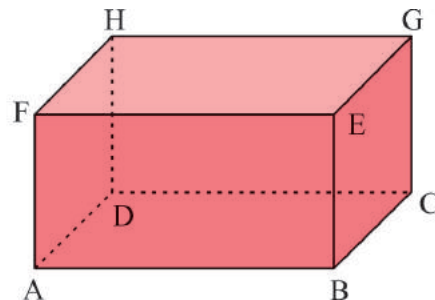
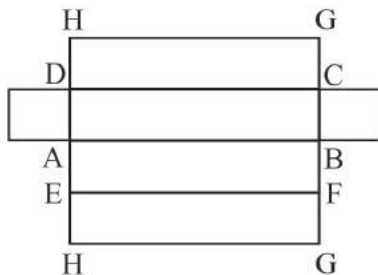
With the given piece of paper, make the following shapes. Now fold the paper along AB, BC, CD and AD to form a rectangular prism.



## Activity

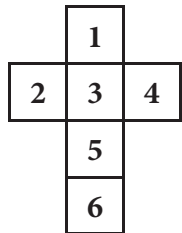
### Making of a six faced figure/cuboid

With the given piece of paper, fold the paper along AB, BC, CD and AD and fold along EF to form a cuboid.

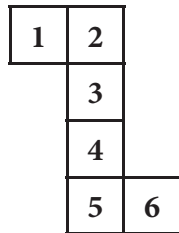


### 7.6 To Make cube and cuboids from a given net

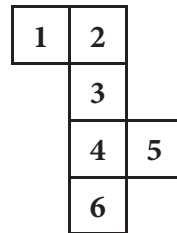
We can make a cube and cuboids by drawing a net of squares and a net of rectangles respectively as shown below:



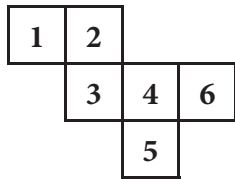
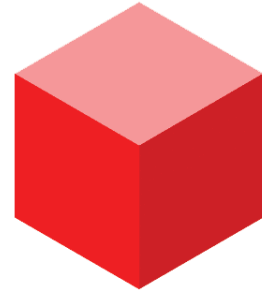
(i)



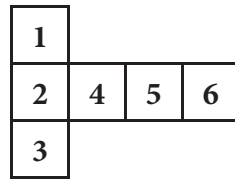
(ii)



(iii)



(iv)

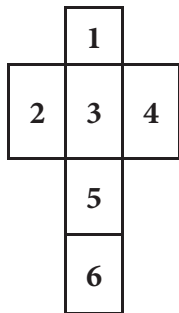


(v)

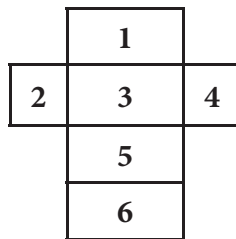


(vi)

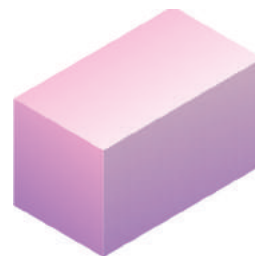
Form net No.(i) to (vi) on a thick paper and by cutting and folding, make a beautiful cube.



(vii)



(viii)

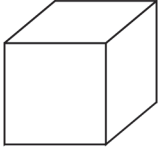
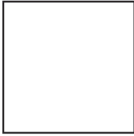


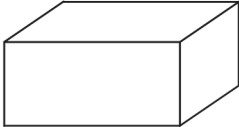




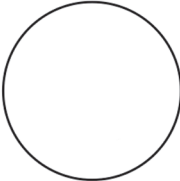
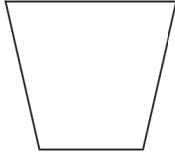
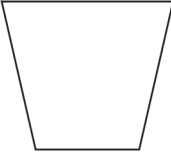


Form net No. (vii) and (viii) on a thick paper, and by cutting and folding it, make beautiful cuboids.



### 7.7 Different Side view of Solid Shapes

When we see different solid shapes from different angles ,they represent different views

| Shapes  | Top view  | Front view   | Side view   |
|---|---|--|---|
|  |  |   |  |
|  |  |  |  |
|  |  |  |  |

### 7.8 Tessellation

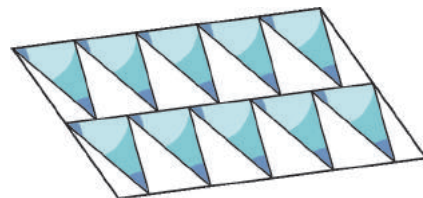
When we fix similar tiles on a floor in such a way that there is no gap between the tiles nor the tiles overlap . This formation is known as Tessellation

For example :

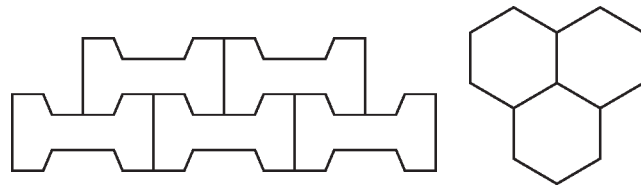
(i) With Rectangular tiles



(ii) With Triangular tiles



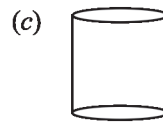
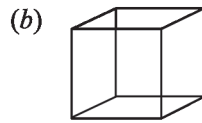
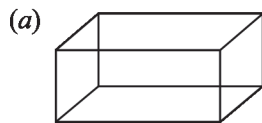
(iii) with Other designs



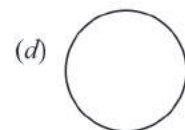
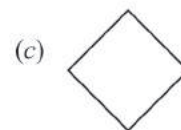
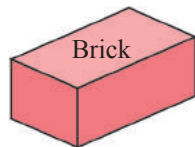
All of you must have seen many such tile designs on the roads around you. Draw these designs on your note books.

## Exercise 7.2

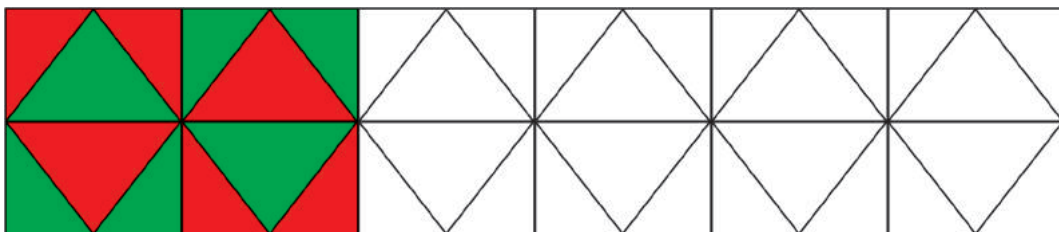
1. Which shapes can we form from the following net ?



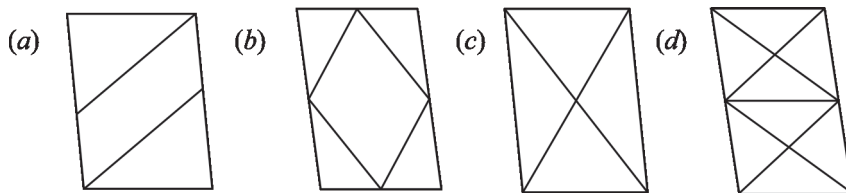
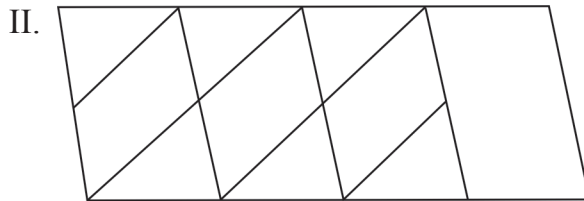
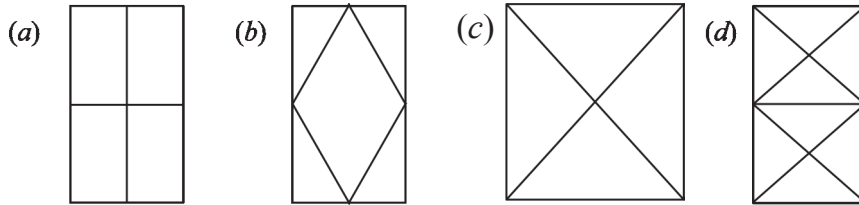
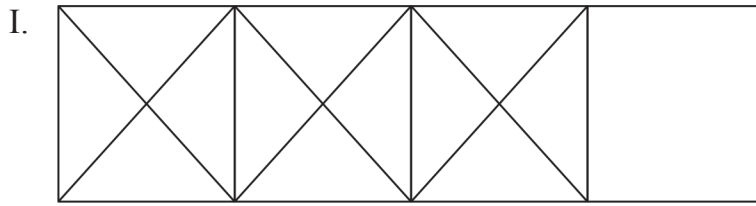
2. How does a brick look from the top view ?



3. Complete the pattern by filling colours :



4. Which tell would complete the following designs ?



**Learning Outcomes :**

- The students are able to draw a circle with the compass. And they understand centre ,radius and diameter of circle.
- They are feeling happy to draw different shapes with Tangram.
- They are able to make cube and cuboids by using different nets.
- They are able to recognize different tile designs.



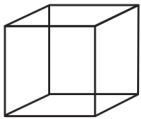

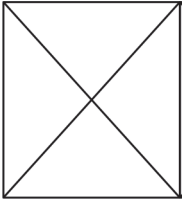
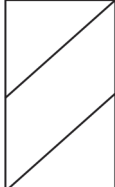
## Answer Key

### Exercise 7.1

1. (a) Radius = OC, OB, OG, OD, OE, OA  
 (b) Diametre = AB, EG  
 (c) Chord = AF, AB, EG
2. (a) 3 cm      (b) 4.1 cm      (c) 4.3 cm
3. (a) 26 cm      (b) 42 cm      (c) 34 cm      (d) 16 cm
5. Diametre
6. (a) Radius      (b) 2      (c) Diametre      (d) Equal

|                 |      |       |       |       |       |
|-----------------|------|-------|-------|-------|-------|
| <b>Radius</b>   | 4 cm | 8 cm  | 5 cm  | 6 cm  | 11 cm |
| <b>Diametre</b> | 8 cm | 16 cm | 10 cm | 12 cm | 22 cm |

### Exercise 7.2

1. (a) 
2. (b) 
4. I. (c) 
4. II. (a) 



# PERIMETER AND AREA

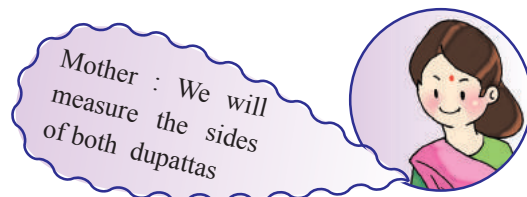
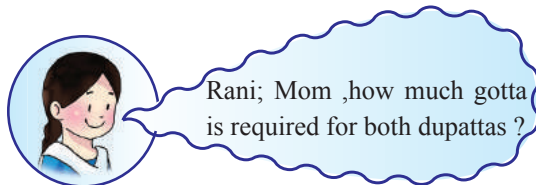
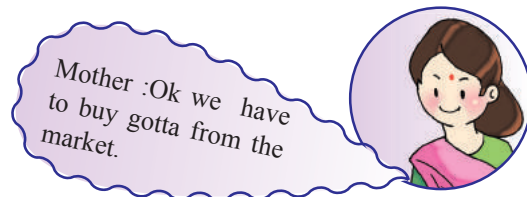
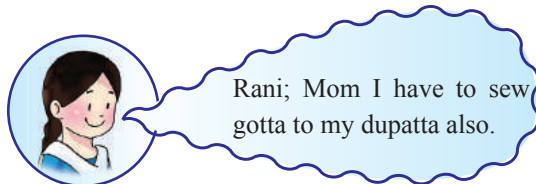
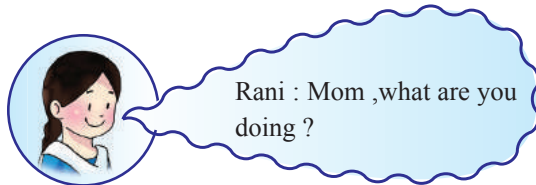
## OBJECTIVES :- To enable the students :

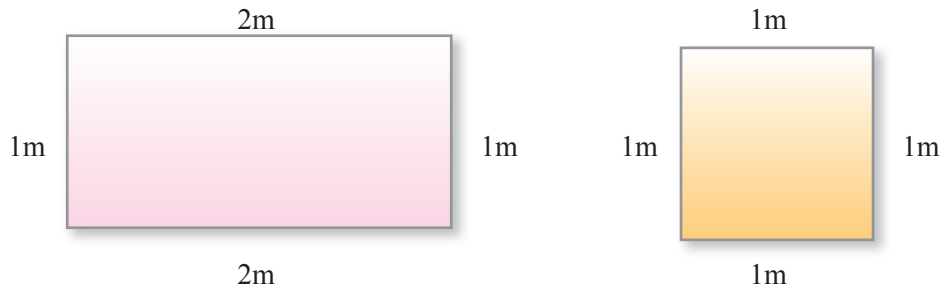
1. To gain confidence in using addition, subtraction, multiplication and division.
2. To recognize 2D shapes of different sizes.
3. To solve problems related to perimeter in daily life situations.
4. To find the perimeter of different shapes intuitively.
5. To compare the perimeter of shapes having different sizes.

## 8.1 Perimeter

Let us do an activity.

### Revision





Gotta required for mother's dupatta =  $2\text{ m} + 1\text{ m} + 2\text{ m} + 1\text{ m} = 6\text{ m}$

Gotta required for Rani's dupatta =  $1\text{ m} + 1\text{ m} + 1\text{ m} + 1\text{ m} = 4\text{ m}$

We have measured the length of both dupattas =  $6\text{ m} + 4\text{ m} = 10\text{ m}$  gotta is required.



### Activity

Teacher will enact the conversation between two farmers dramatically in the class with the help of two students.

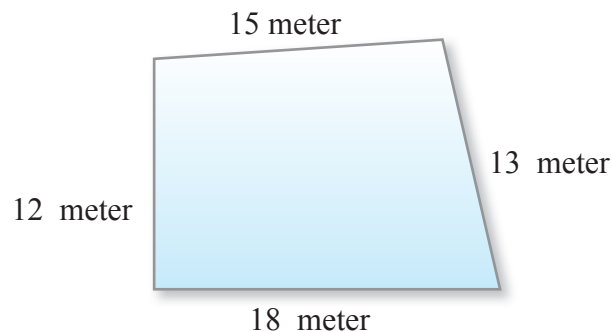
**Gurmail Singh** : I am very upset. My crops are destroyed by stray animals everyday.

**Jagsir Singh** : Its very easy to tackle, Gurmail Singh. Do the fencing around your field.

**Gurmail Singh** : You are right. How much wire is required for that ?

**Jagsir Singh to** : First of all, you calculate the perimeter of your field.

**Gurmail Singh**



**Gurmail Singh :** But tell me what is a Perimeter? How is it calculated?

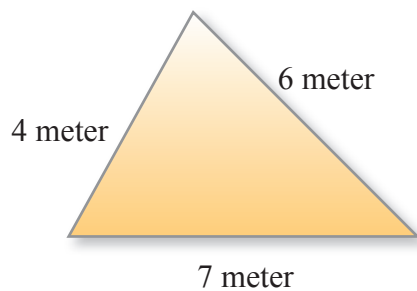
**Jagsir Singh :** It is very easy task. Measure all the sides of the field and add them. It is the perimeter. You need this length of the wire.

All the sides of Gurmail Singh's field are 18m, 13m, 15m and 12m.

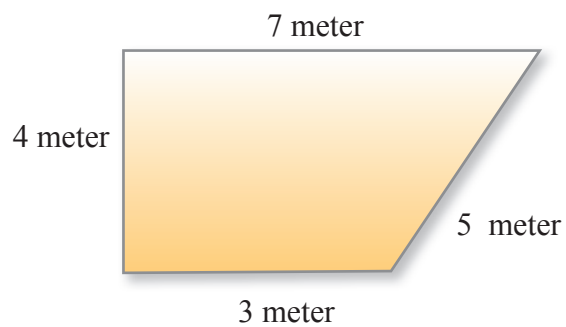
So perimeter = 18m + 13m + 15m + 12m = 58m.

Now you have understood what is the perimeter of a shape. Perimeter is the distance around a two-dimensional shape.

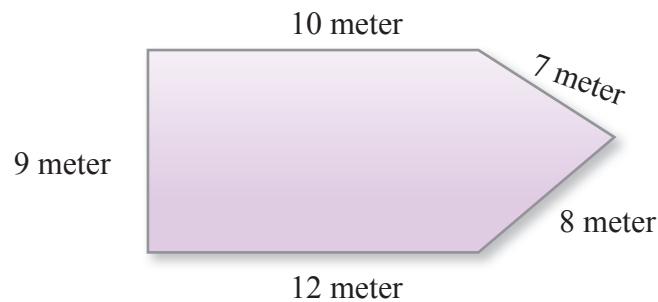
**Example 1 :** Find the perimeter of following figures.



(a)



(b)



(c)

**Solution :** Perimeter of Figure (a) = Sum of all sides of the figure.

$$= 4 \text{ m} + 6 \text{ m} + 7 \text{ m}$$

$$= 17 \text{ m}$$

Perimeter of Figure (b) = 4 m + 7 m + 5 m + 3 m

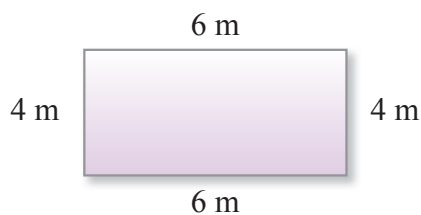
$$= 19 \text{ m}$$

Perimeter of Figure (c) = 10 m + 7 m + 8 m + 12 m + 9 m

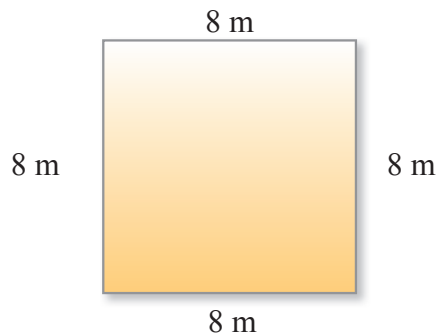
$$= 46 \text{ m}$$



**Example 2 :** Find the sum of the perimeter of following pictures.



(a)



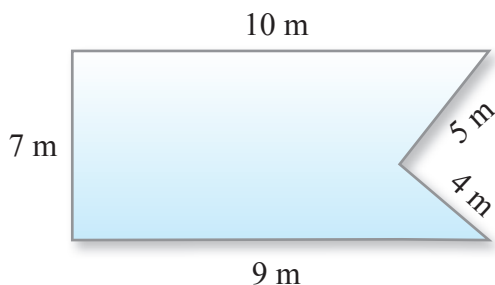
(b)

**Solution :** Perimeter of Figure (a) =  $4\text{ m} + 6\text{ m} + 4\text{ m} + 6\text{ m} = 20\text{ m}$ .

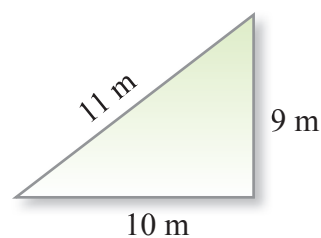
Perimeter of Figure (b) =  $8\text{ m} + 8\text{ m} + 8\text{ m} + 8\text{ m} = 32\text{ m}$ .

Sum of the Perimeter of Figure (a) and (b) =  $20 + 32 = 52\text{ m}$

**Example 3 :** In given figures whose perimeter is more and by how much ?



(a)



(b)

**Solution :** Perimeter of Figure (a) =  $10\text{ m} + 5\text{ m} + 4\text{ m} + 9\text{ m} + 7\text{ m}$   
 $= 35\text{ m}$

Perimeter of Figure (b) =  $11\text{ m} + 9\text{ m} + 10\text{ m} = 30\text{ m}$

Perimeter of Figure (a) is more than the perimeter of figure (b) by 5m ( $35\text{ m} - 30\text{ m}$ ).

**Example 4 :** Four sides of a school park are 50m ,37m 40m and 45 m. What is the length of wire required for fencing ?

**Solution :** To find the required wire for fencing we shall have to find the perimeter of the park.

Perimeter of the park. =  $50\text{ m} + 37\text{ m} + 40\text{ m} + 45\text{ m} = 172\text{ m}$

Therefore 172 m wire is required for fencing the park.



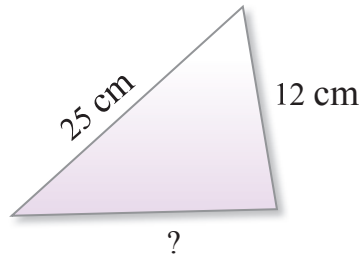
**Example 5 :** The perimeter of given triangle is 50cm and two sides of triangle are 12cm and 25 cm. Find the third side of triangle.

**Solution :** Perimeter of triangle = 60 cm

$$\begin{aligned} \text{Sum of two sides of triangle} &= 12 \text{ cm} + 25 \text{ cm} \\ &= 37 \text{ cm} \end{aligned}$$

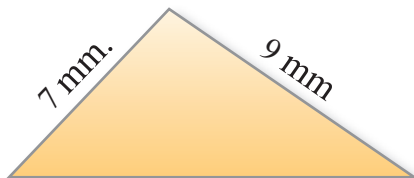
Third side of the triangle = perimeter of triangle – sum of two sides of triangle.

$$= 60 \text{ cm} - 37 \text{ cm} = 23 \text{ cm}$$

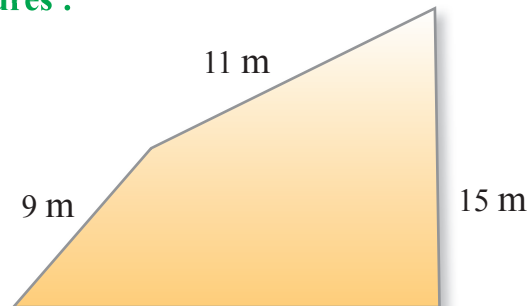


### Exercise 8.1

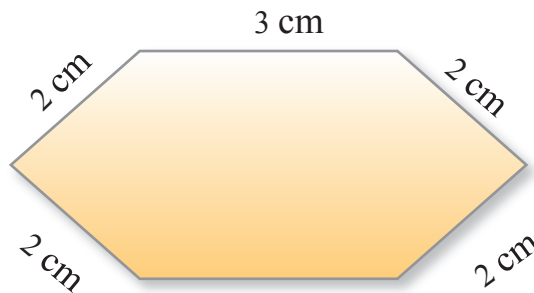
1. Find the perimeter of given figures :



(a)



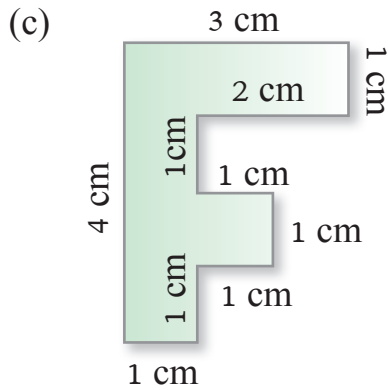
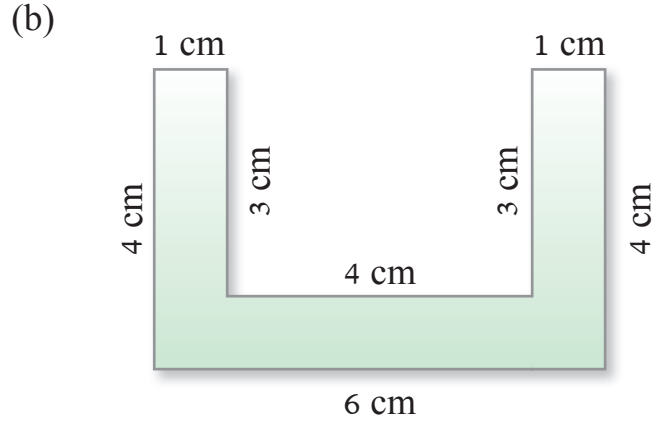
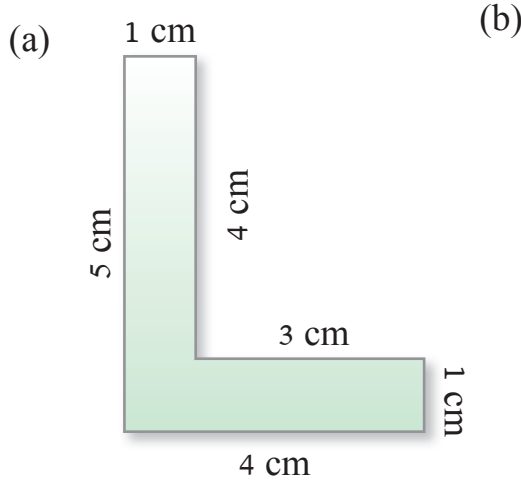
(b)



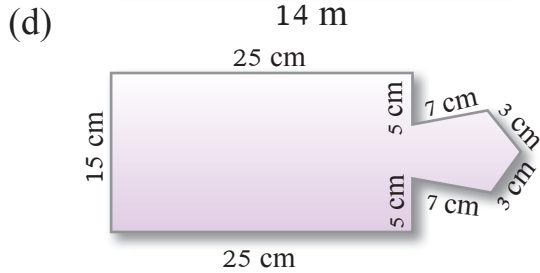
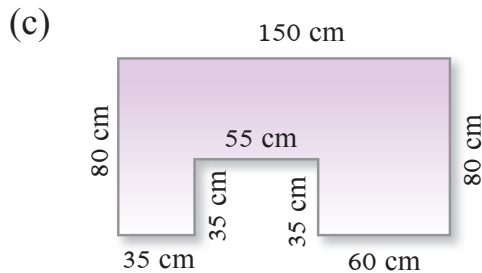
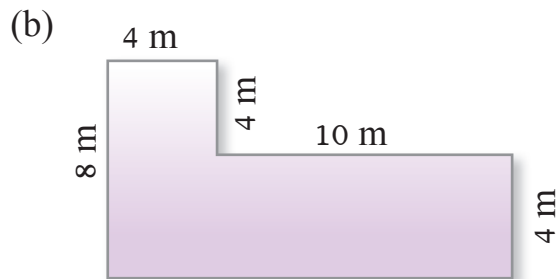
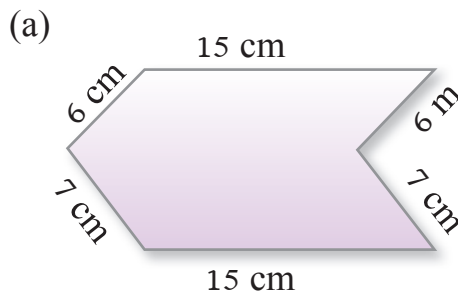
(c)



2. Find the perimeter of given figures :

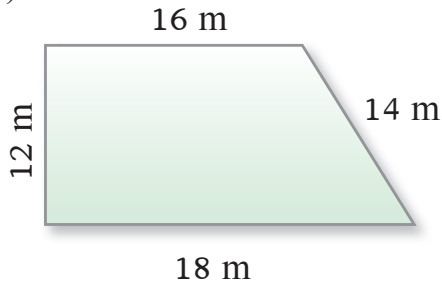


3. Find the perimeter of given figures :

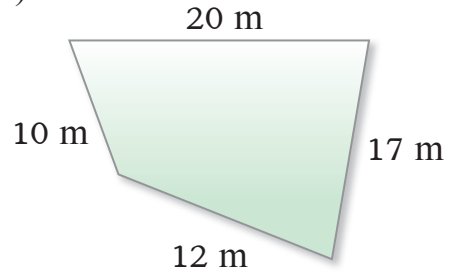


4. In given figures, the perimeter of which figure is less and by how much ?

(a)

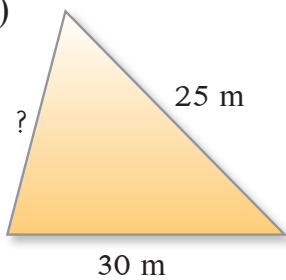


(b)



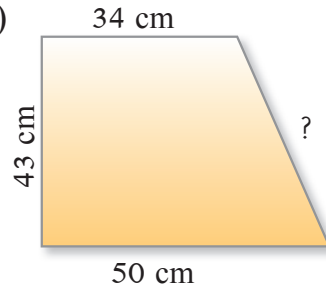
5. Find the length of side with (?) of the given figures :

(a)



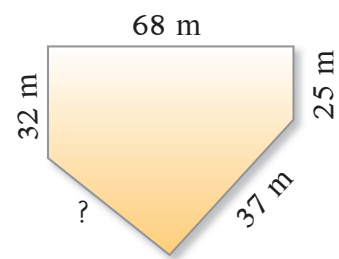
Perimeter = 70 m

(b)



Perimeter = 150 cm

(c)



Perimeter = 207 m

6. (a) Four sides of a field are 40m, 35m, 25m and 28m. Find its perimeter.

(b) Length and breadth of a tennis court are 25m and 9m respectively. A net is required on four sides of the tennis court so that players do not face any difficulty. What is the length of the net is required to cover the 4 sides of tennis court ?

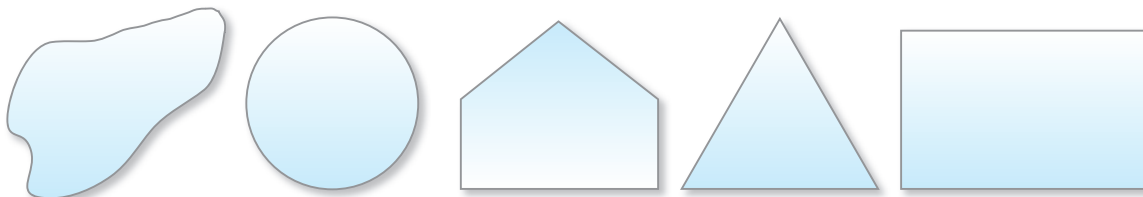


### Practical Activities

**Material :** A thread, rope or wire.

**Activity :**

1. Make closed figures with the help of thread.



Measure the length of sides of each figure.



2. Ask the children to measure perimeter of the floor of the classroom, blackboard and park.

## 8.2 Area

Let us do an activity, to understand the concept of Area.

**Teacher** - In previous part we have discussed the perimeter i.e. Fencing of the field, perimeter of a field. But the question arises what would we call the part in which we grow the crops.

Let us do an activity to know about this part.

### Activity

Teacher will draw the boundary around his hand on the blackboard. He would call one of the students to make a boundary around his hand on the blackboard, and teacher will colour both the shapes with coloured chalk.

Teacher will ask the students which of these two figures have more coloured area.

Teacher's hand



Child's hand



#### Hint For Teacher

1. Similarly teacher would ask the children to draw the picture of their foot on the paper and to colour them. Now the teacher will ask the students whose foot has more coloured area.
2. Teacher will discuss area of surface of a note book or a register and other plane goods.



**Children** - Sir, More colour has been used for your hand.

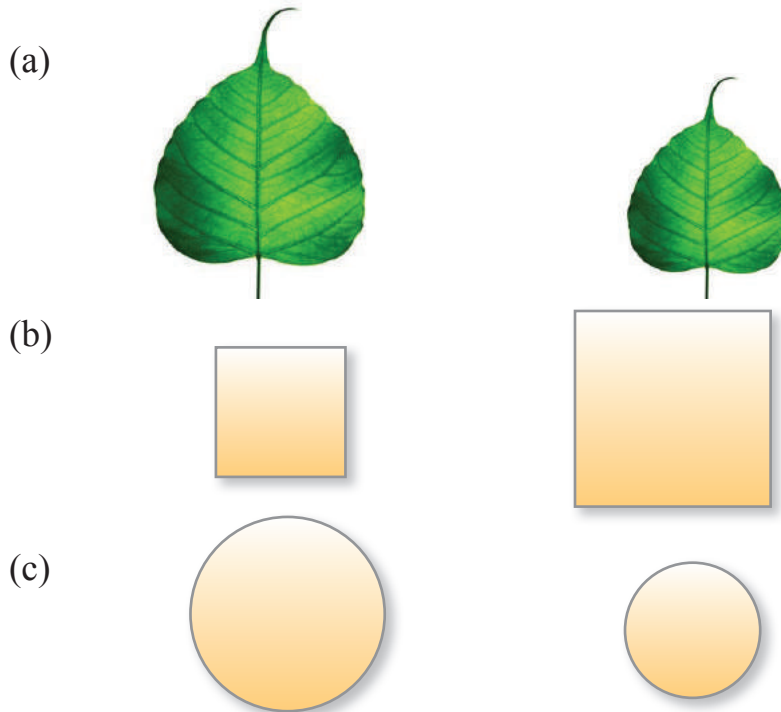
**Teacher** - Yes children, more colour has been used because shape of my hand covers more space.

**Area :**

A surface covered by a figure is called its area.

**Exercise 8.2**

Which of the following figures have covered more surface. Tick the figure which  has greater area.



**8.2.1 Unit of Area**

We can compare the area of two figures easily. But we can not tell how much more area is covered by larger figure than the smaller one.

For the solution of this problem we will discuss the standard unit to measure area of the figures.

Earlier we had learnt that meter and centimetre are the standard units of length. Similarly area is measured in square units. 1 square cm or 1 square metre.



Area covered by square having side 1cm is 1 square cm and area covered by square having side 1meter is 1 square meter.

**Units of Area**



Length of side = 1cm

Length of side =1m

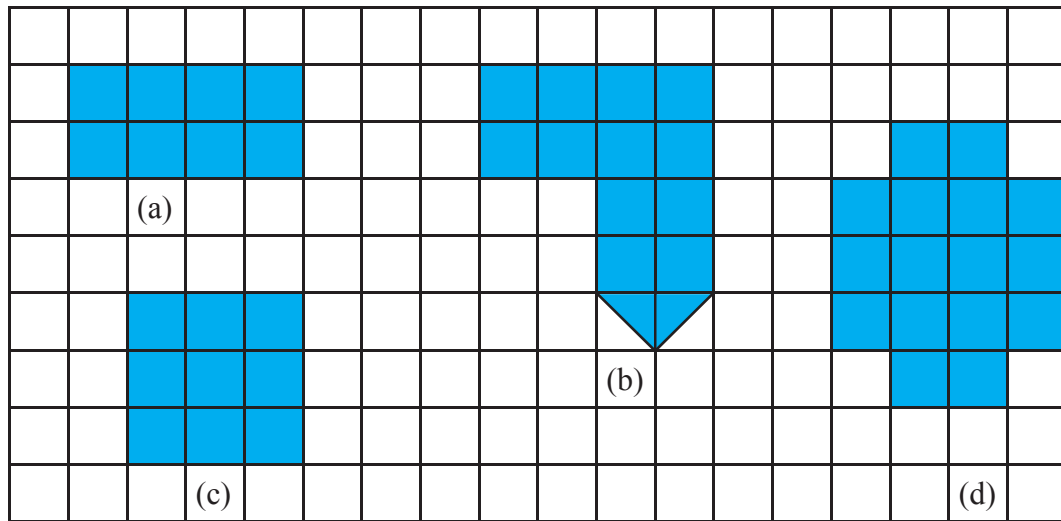
Area of square = 1 square cm

Area of square=1 square meter

**Difference between Perimeter and Area**

Perimeter is the length of the path that covers closed figure and Area refers to the space covered by closed figure.

**Example 1 :** Find the area of given figures by counting squares If the side of each square is 1cm and area of each square is 1 square cm.



**Solution :-** (a) 8 square cm

(c) 9 square cm

(b) 13 square cm

(d) 16 square cm

**Hint For Teacher**

- Teacher would ask the students to draw shapes and shade areas and perimeters of these shapes using different colours.

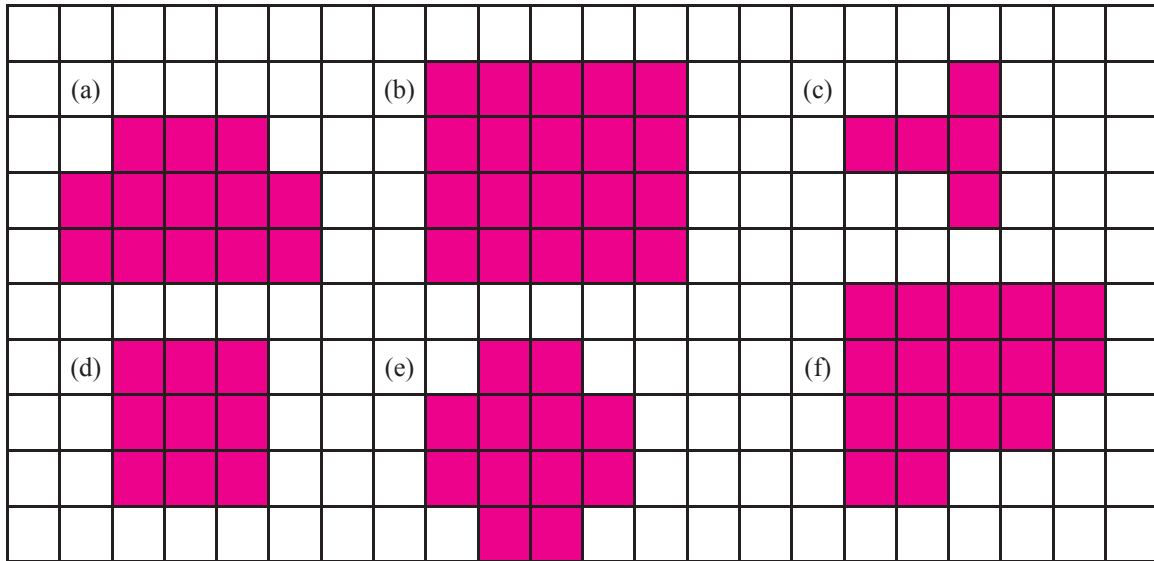


### Exercise 8.3

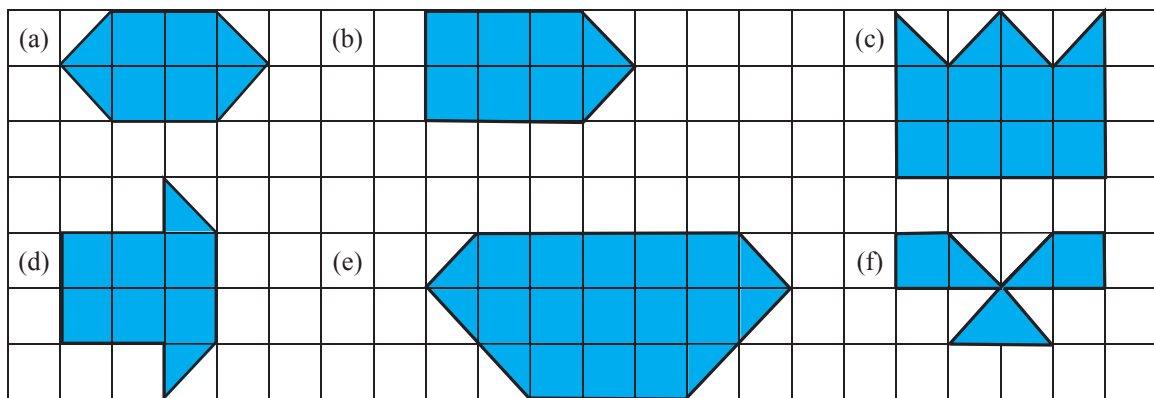
1. Colour the area covered by each figure :



2. Find the area of each figure on the basis of number of squares if side of each square is 1cm and area of each square is 1 square cm.



3. How many square cm area is covered by each figure ?



4. In a notebook with squares draw your favourite figure in which the number of square boxes are :

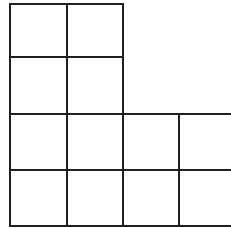
(a) 20

(b) 27

(c) 15



5. Look at this picture. Can you divide the figure into four equal parts. How many squares are there in each part ?



### Multiple Choice Questions (MCQ)

1. Sum of the length of all sides of a closed figure is called .....

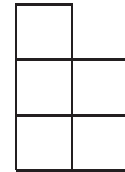
- (a) Perimeter (b) Area  
(c) Shadow (d) None of these

2. Find the perimeter of a triangle having sides 5cm, 7cm and 9cm :

- (a) 15cm (b) 20cm  
(c) 27cm (d) 21cm

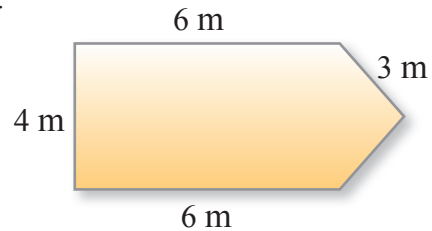
3. Find the perimeter of a shape if each side of square is 1cm :

- (a) 12cm (b) 7cm  
(c) 28cm (d) 14cm



4. The perimeter of given figure is 22m. The four sides of this figure are 4m, 6m, 6m and 3m. Find the fifth side.

- (a) 4 m (b) 3 m  
(c) 5 m (d) 2 m



5. Find the perimeter of a square whose side is 5cm.

- (a) 25cm (b) 15cm  
(c) 20cm (d) 16cm

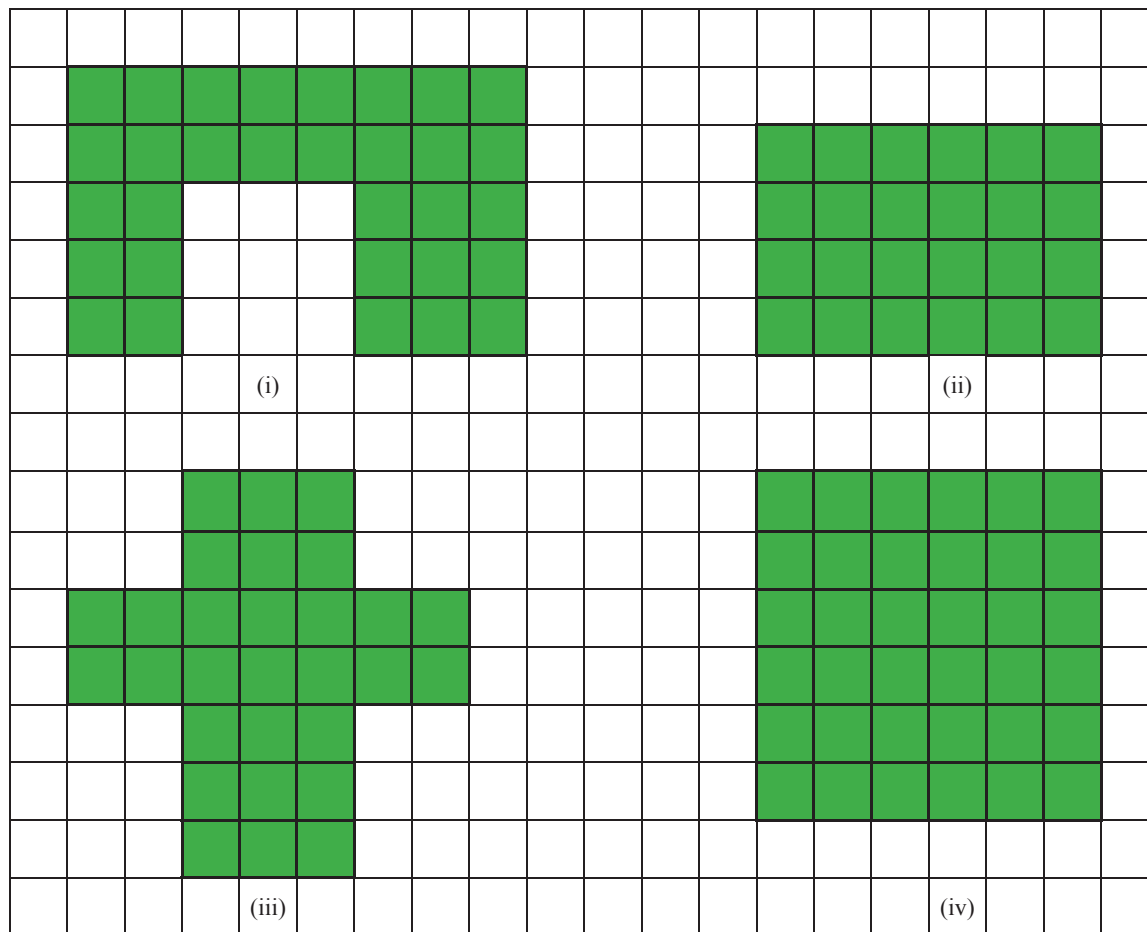
6. Find the perimeter of a rectangle whose length is 4cm and breadth is 5cm.?

- (a) 9cm (b) 12cm  
(c) 15cm (d) 18cm





7. Find the area of the given figures.



Which figure has greater area.

- (a) (iv)                      (b) (iii)                      (c) (i)                      (d) (ii)

8. Find the area of a square side is 6cm

- (a) 24 square cm                      (b) 36 square cm  
 (c) 30 square cm                      (d) 12 square cm

### Learning Outcomes

- The students will be able to understand the concept of area/intuitively.
- Find out the area of covered shapes.
- Find exact area in daily life.
- Compare the perimeters of two or more shapes.
- Understand the concept of area intuitively.
- Find out the space covered by certain shapes.
- Find out the area in daily life situations.



## Answer Key

### Exercise 8.1

1. (a) 29 mm (b) 53 m (c) 14 m
2. (a) 18 cm (b) 26 cm (c) 16 cm
3. (a) 56 m (b) 44 m (c) 530 cm (d) 91 cm
4. (b) 1 m
5. (a) 15 cm (b) 23 cm (c) 45 cm
6. (a) 128 m (b) 68 m

### Exercise 8.3

1. Do yourself.
2. (a) 13 square cm (b) 20 square cm  
(c) 6 square cm (d) 9 square cm  
(e) 12 square cm (f) 16 square cm
3. (a) 6 square units (b) 7 square units  
(c) 10 square units (d) 7 square units  
(e) 16 square units (f) 4 square units
4. Do yourself.
5. Answer may differ

### Multiple Choice Questions (MCQ)

1. a    2. d    3. a    4. b    5. c    6. d    7. a    8. b





# DATA HANDLING

## OBJECTIVES :- To enable the students :

1. To present different data on a bar graph.
2. To read and explain the bar graph.
3. To present data on pie chart.
4. To read and explain the pie chart.
5. To draw conclusion from various data.

## Revision





**Teacher** - What do you like to eat ?

**Children** - Chocolate, toffees, chips, apple, pomegranate, chappati, rice, vegetables.

**(In group)**

**Teacher** - Chocolate and toffees spoil your teeth .So we should avoid such things. We should have more fruits and vegetables because fruits and vegetables are helpful in our physical and mental development. Let us make a chart of your favourite vegetables.



| Vegetables  | Number of students who like vegetables |
|---|--|
|  |  |
|  |  |
|  |  |
|  |  |



After preparing the chart the teacher will ask the following questions.

- (i) How many children like cauliflower ?
- (ii) How many children like peas ?
- (iii) Which vegetable is liked the most by the children ?
- (iv) Which vegetable is liked the least by the children ?
- (v) In the above table, number of children who like different vegetables should be shown by the tally marks.

In the previous classes, we had studied about collection of data. We collected them by arranging in tables and by using tally marks.

### 9.1 Graph diagram

Pictograph is a way of representing the data in the form of pictures. If the number of items is more, then we show the pictures using scales. Earlier we learnt these picture signs in the horizontal form. Now In this part, we will study them in vertical form also.

#### Hint For Teacher

- Teacher will prepare a chart with the help of children.



## Activity

Teacher will ask the children their favourite sweets and also discuss its colour, taste and sweets used on different occasions.



Gulaab jamun,

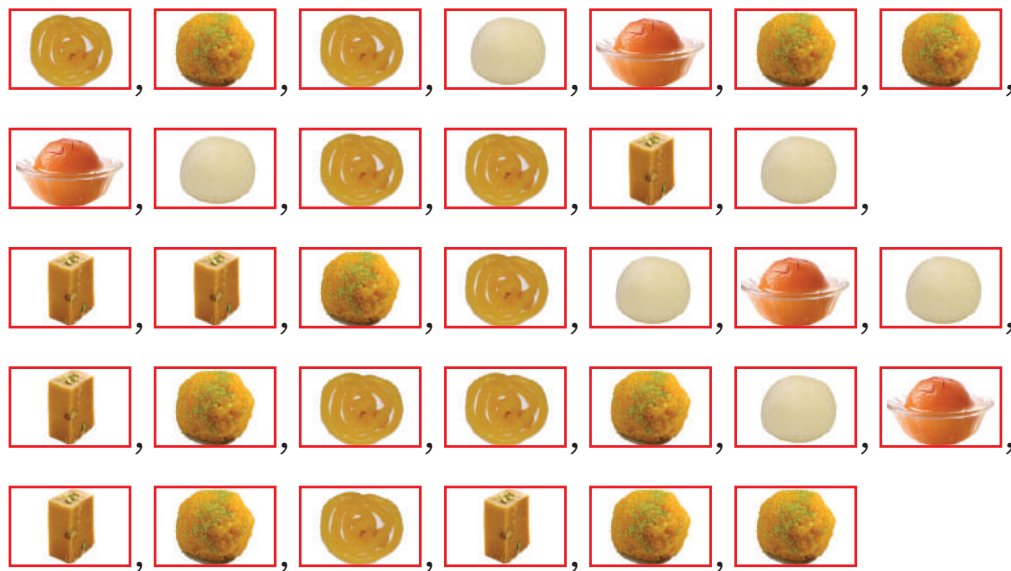
Barfi

Jalebi

Ladoo

Rasgulla






All students will tell about their favourite sweets.



After knowing about their favourite sweets, the students are placed in 5 different groups according to their liking. From each group a child will count the number of children in his group.

The teacher will write their numbers on the blackboard and will ask each student to represent numbers by using tally marks in his note book.

All the students will note down the information in a table using tally marks as given in the picture on the next page.

| Favourite Sweet   | Tally bar | Number of Children |
|---|-----------|--------------------|
|  | IIII III  | 9                  |
|  | IIII III  | 8                  |
|  | IIII      | 6                  |
|  | IIII      | 6                  |
|  | IIII      | 4                  |

The teacher tells the students that In earlier classes we had learnt pictograph horizontally. Now we shall read it vertically.

**Teacher** - Can we make this pictograph in vertical form ?

**Children** - Yes Sir.

**Teacher** - Now we will see how this pictograph will look in vertical form.



Later on, all the students will draw the pictograph in vertical form in their notebooks.

**Teacher** - Is there any change if we show the data in the vertical form ?

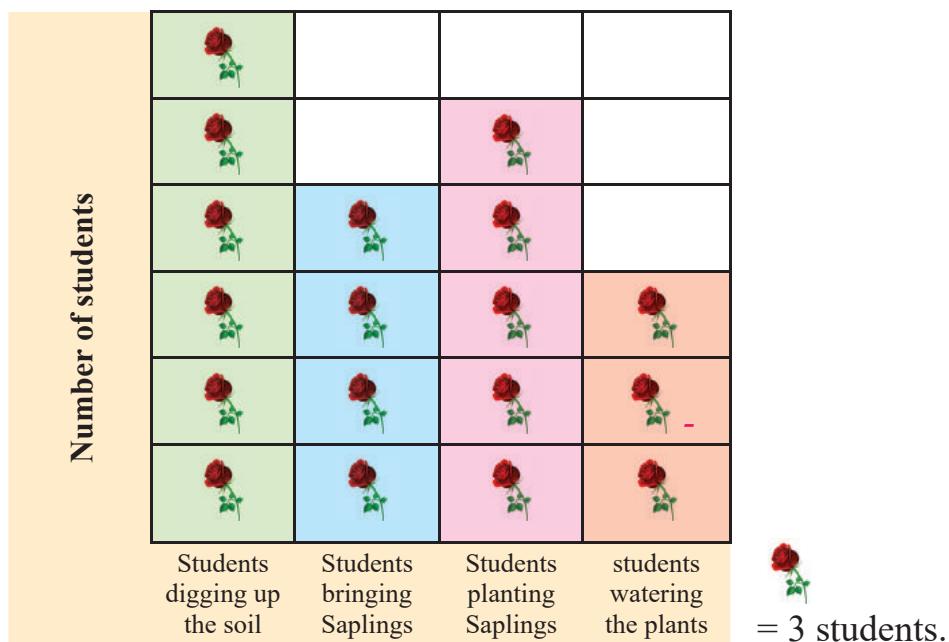
**Students** - No, sir.

**Example 1.**

**Preparation of flowerbeds**

Students of class 4th are making a flowerbed of colourful flowers Different duties have been assigned to all the students by the monitor of the class like digging up the soil, to bring the saplings of flowers, to plant the saplings, to water the plants and taking care of plants etc.

**Duty chart**



From the above duty chart, we come to know :

**(i) Which work is being done by maximum number of students ?**

**Solution** - The ones digging the soil.

**(ii) How many students are digging the soil ?**

**Solution** - 18

(iii) Which activity has more number of students, those who are bringing the plants or those who are watering the plants.

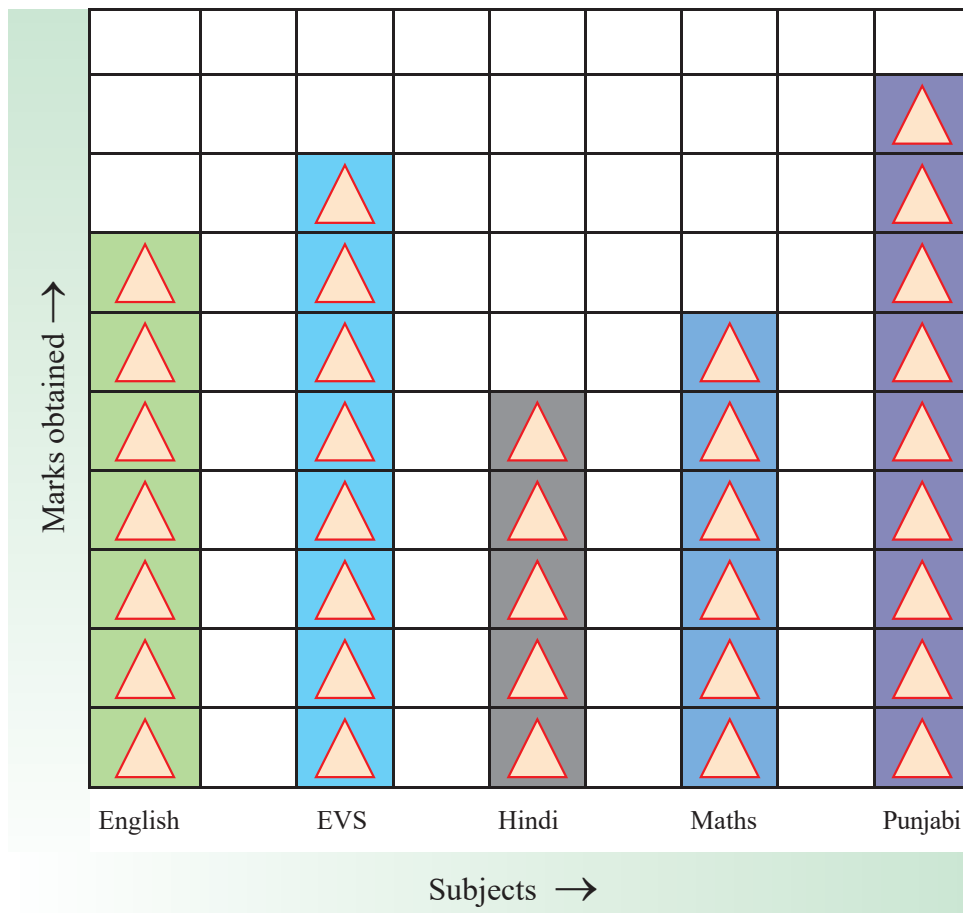
**Solution -** Those who are bringing the plants.

(iv) How many total students are performing various duties according to duty chart ?

**Solution -** 54 students

**Example 2.**

The following pictograph shows the marks obtained by 4th class student Himatveer in different subjects.



= 10 marks

Look at the pictograph given above carefully and answer the following questions.

(i) How many marks did he score in English ?

**Solution -** 70





(ii) How many marks did he score in Punjabi ?

**Solution -** 90

(iii) In which subject did he score 60 marks ?

**Solution -** Math

(iv) In which subject did he score maximum marks and how many ?

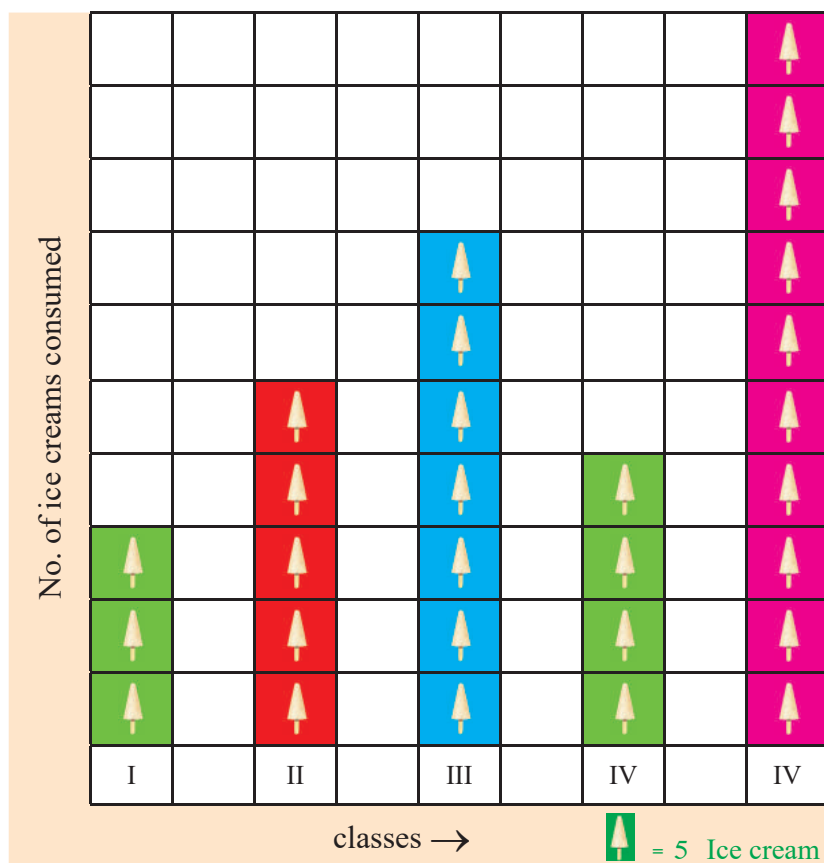
**Solution -** Punjabi ; 90 marks


(v) In which subject did he score minimum marks and how many ?

**Solution -** Hindi; 50 marks

### Exercise 9.1

1. Ice cream eaten by first to fifth class students of a particular school are shown in pictograph as under. Answer the following questions :



- (i) How many ice creams are represented by 1  ice cream stick ?
- (ii) How many ice creams did 4th class students eat ?
- (iii) How many ice creams did 5th class students eat ?
- (iv) Which class ate 15 ice creams ?
- (v) Which class ate maximum number of ice creams ?
- (vi) Which class ate least number of ice creams ?

**2. Prepare pictograph vertically which represent enrolment from first to fifth class of your school.**

| Classes | Total Students |
|---------|----------------|
| I       |                |
| II      |                |
| III     |                |
| IV      |                |
| V       |                |

## 9.2 (Bar Graph)

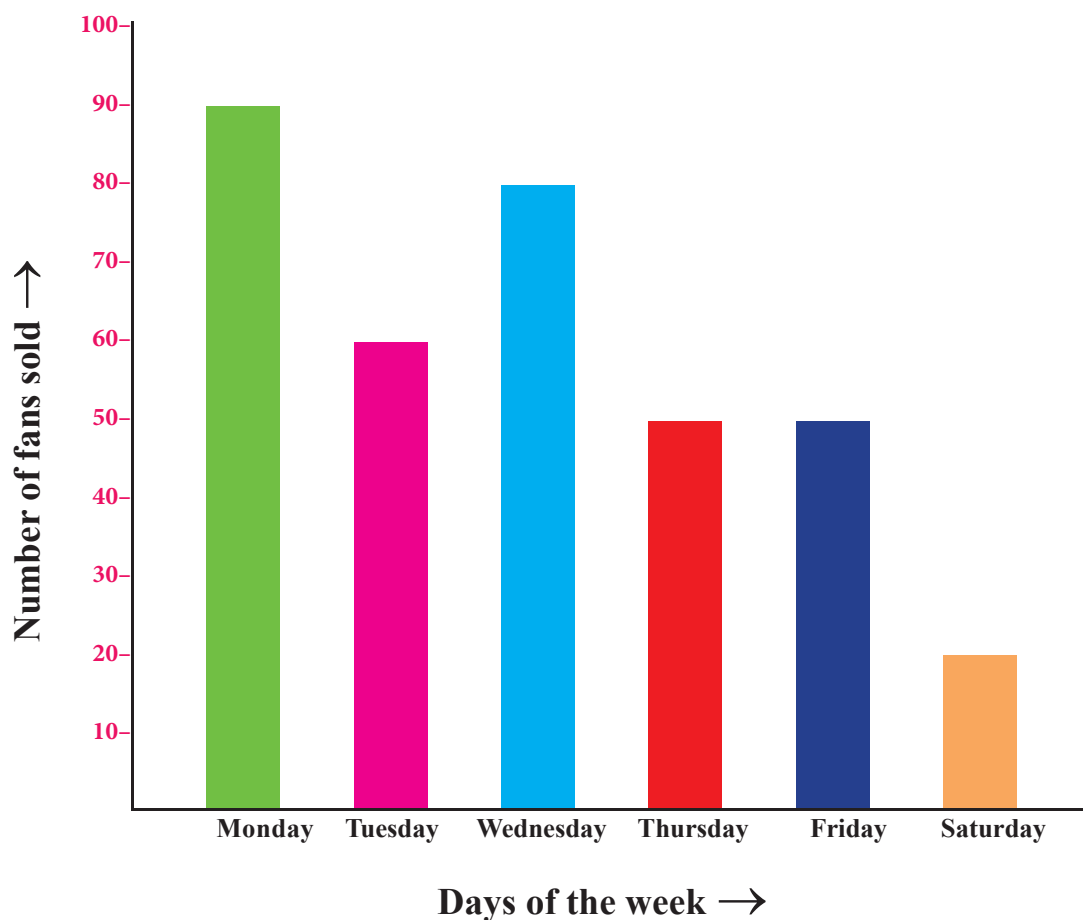
Bar graph is a graph which shows data vertically. Length of rectangular bar depends on given data. In pictograph done earlier, we used different pictures but in bar graph, we will use rectangular bars.

### Example 3 :

The Bar graph shown in the fig. represents number of fans sold by a shopkeeper in a particular week. Look at the bar graph and answer the following questions ;

**Note for Teacher** - Teacher will fill the attendance of I to V class students on attendance board. He will assume suitable scale and draw pictorial graph.





**Find :**

**(i) Number of fans sold on Monday ?**

**Solution -** 90

**(ii) Number of fans sold on Thursday ?**

**Solution -** 50

**(iii) On which days equal number of fans were sold and how many ?**

**Solution -** On Thursday and Friday equal number of fans were sold, 50 fans.

**(iv) On which day the minimum number of fans were sold ? And how many ?**

**Solution -** On Saturday ; 20 Fans.

### 9.3 (Pie Chart)

There is another form to represent data, Pie chart. To represent data in fractional form, Pie chart is used. In previous classes we have already learnt about fractional numbers. Now we will use pie chart to represent fractional numbers in the form of data.



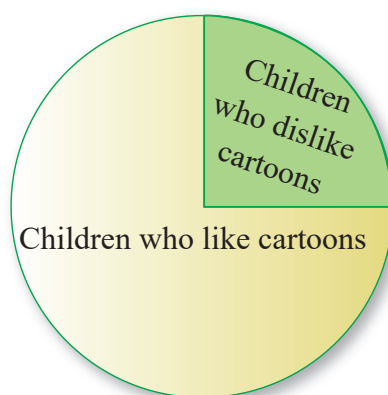
## Activity

- Teacher** - What do you like to do in leisure time ?
- Students** - Watching TV, Play games, reading, writing and other home task .....
- Teacher** - Which TV programmes do you like the most ?
- Students** - Tom and Jerry, Doremon, Motu Patlu and serials etc.
- Teacher** - Today we shall prepare a table about the children who like to watch cartoons and who don't like cartoons. We will represent this data on a pie chart and will learn to explain the data on pie chart.

**Table**

| Children who like to watch cartoons | Children who do not like to watch cartoons |
|-------------------------------------|--|
| 15                                  | 5  |

**(Pie Chart)**



Fractional form of children who do not like cartoons.

$$\begin{aligned}
 &= \frac{\text{Children who do not like cartoons}}{\text{Total children}} \\
 &= \frac{5}{20} = \frac{1}{4}
 \end{aligned}$$



Therefore children who do not like cartoons are one fourth  $\frac{1}{4}$  of the total children.

Fractional form of children who like cartoons.

$$= \frac{\text{Children who like cartoons}}{\text{Total children}}$$

$$= \frac{15}{20} = \frac{3}{4}$$

Therefore children who like cartoons are three fourth  $\frac{3}{4}$  of the total children.

### Activity

The teacher takes all the students to the library. They see different books there. Teacher tells the importance of the books to the students.



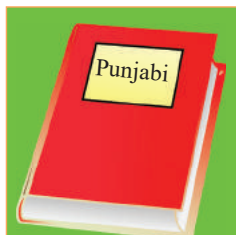
Conversation between teacher and students about the books they have read :

The teacher tells the students to count the books which they follow.

|                           |       |
|---------------------------|-------|
| Number of Punjabi books   | = 50  |
| Number of Hindi books     | = 25  |
| Number of English books   | = 25  |
| Total number of the books | = 100 |

**Teacher** - Children we will show the number of books in fractional form as.

Fractional form of Punjabi books.



$$= \frac{\text{Number of Punjabi books}}{\text{Total number of books}}$$

$$= \frac{50}{100} = \frac{1}{2}$$

So number of Punjabi books are half the number of total books.

Fractional form of Hindi books.



$$= \frac{\text{Number of Hindi books}}{\text{Total number of books}}$$

$$= \frac{25}{100} = \frac{1}{4}$$

So number of Hindi books is (one fourth)

$\frac{1}{4}$  the number of total books.



Fractional form of English books.



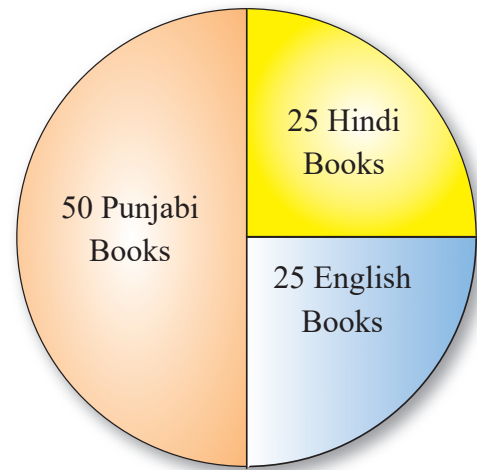
$$= \frac{\text{Number of English books}}{\text{Total number of books}}$$

$$= \frac{25}{100} = \frac{1}{4}$$

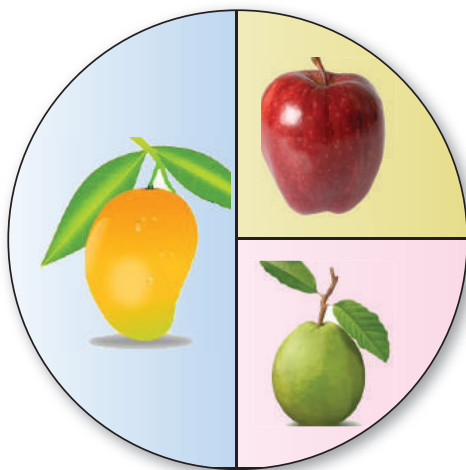
So number of English books are (one fourth)  $\frac{1}{4}$  the number of total books.



Now Teacher will make pie chart on blackboard to present the above data.



**Example 4 :**



The following pie chart represent data of students who likes different fruits.

- ❖  $\left(\frac{1}{2}\right)$  Half of the students like mangoes.
- ❖  $\left(\frac{1}{4}\right)$  (one fourth) of the students like apples.
- ❖  $\left(\frac{1}{4}\right)$  (one fourth) of the students like guavas.

If there are 200 students in a school.

**(i) Find the number of students who like mango ?**

**Solution -**  $\frac{1}{2} \times 200 = 100$

**(ii) Find the number of students who like apple ?**

**Solution -**  $\frac{1}{4} \times 200 = 50$

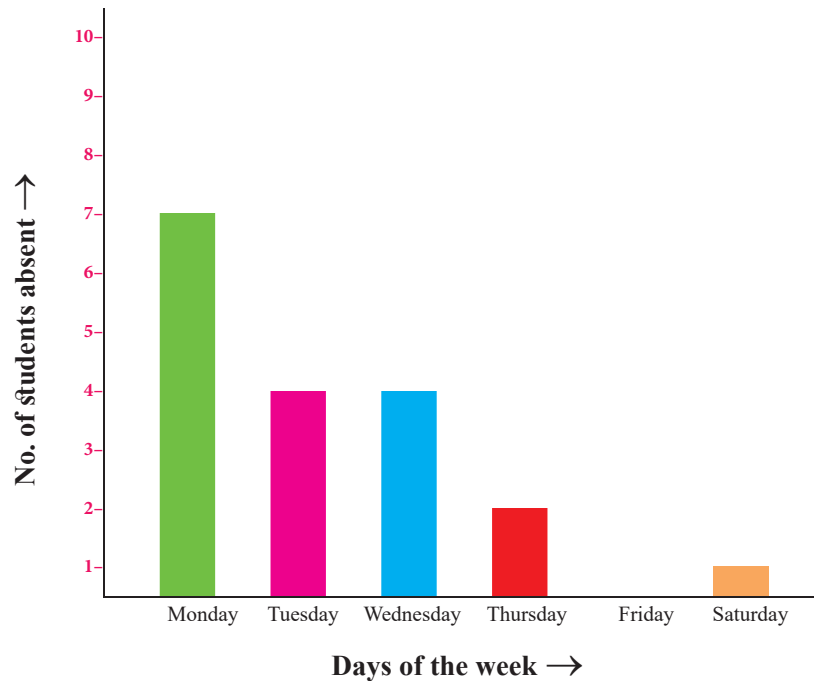
**(iii) Find the number of students who like guava ?**

**Solution -**  $\frac{1}{4} \times 200 = 50$



## Exercise 9.2

1. Given bar graph represents the number of students absent during the week :



Read the bar graph carefully and answer the following questions :

- Find the number of class 4 students who are absent on Monday ?
- On which day of the week no student was absent ?
- On which day of the week the maximum number of students were absent ?
- Find the number of students of 4th class who are absent on Friday ?
- On which two days of the week the number of absentee students are equal and how many?

2. Number of students who play different games are given below:

|           |      |
|-----------|------|
| Kabbadi   | = 15 |
| Kho-kho   | = 10 |
| Football  | = 25 |
| Cricket   | = 20 |
| Badminton | = 5  |

Draw bargraph representing above data.

(\* scale of 5 children should be taken)



3. There is a T20 cricket match between Australia and India at I.S Bindra stadium Mohali . India scored following runs in 6 overs of power play.

- Over no. 1 = 6
- Over no. 2 = 9
- Over no. 3 = 3
- Over no. 4 = 18
- Over no. 5 = 6
- Over no. 6 = 12

Draw bargraph representing above data.

(Let Hint : Scale – 3 Runs = 1 unit)

Look at the pie chart and answer the following :

4.



- (a) How many students come to get drenched in rain ?
- (b) How many students do not like to get drenched in rain ?

If there are 32 children in a class.

- (c) How many students like to be drenched in rain.
- (d) How many students do not like to be drenched in rain.

5. When the Teacher asked the students of fourth class, what do they like most, Tea, Coffee, or milk.

| Items  | Number of children |
|--------|--------------------|
| Milk   | 10                 |
| Tea    | 5                  |
| Coffee | 5                  |

Total number of children = .....

Represent the above data by a pie chart.

**Hint for Teacher**

- The teacher can make bar graph of absentees in a particular week, of 4th class and ask the questions related to it.





## Practical Activities

### Objectives :

1. Fill the data in the table.
2. Prepare horizontal and vertical graph separately with the help of data.
3. Developing the understanding of more/less concepts.

### Material :

Chart paper, scale, pencil, matchbox.

### Method :

1. Draw a table on the chart. Students will fill the number of students from class I to V in the table with the help of teacher.

| Class | Number of students |
|-------|--------------------|
| I     |                    |
| II    |                    |
| III   |                    |
| IV    |                    |
| V     |                    |

2. After that number of students will be shown on bar graph horizontally on the chart.
3. Now the same data will be shown vertically in bar graph.
4. In the next step the data will be displayed through the pictograph.
5. At last data will be displayed by tally marks (using match sticks)

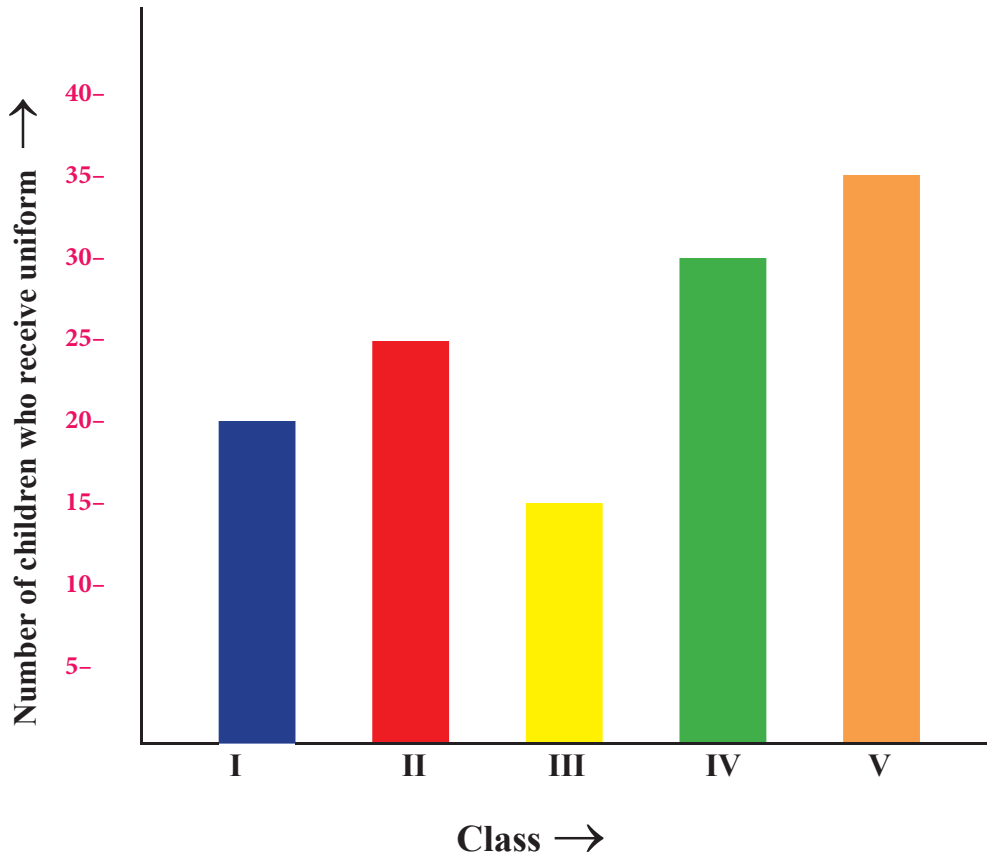
### Conclusion :

1. In which class, the number of students is maximum ?
2. In which class, the number of students is minimum ?
3. How many students are there in class 4 ?
4. Find the total numbers of students in the school ?



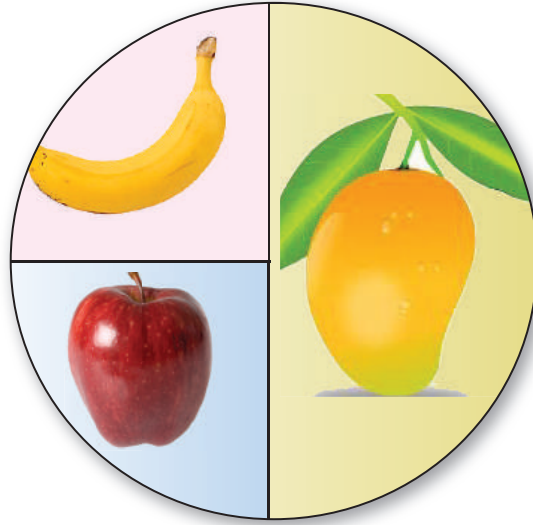
 **WORKSHEET**

**1. Uniforms are distributed in a school from Classes I to V.**



- (i) Uniforms were distributed among 20 students of class Ist. (✓ or ✗)
- (ii) Uniforms were distributed among 7 students of class 5. (✓ or ✗)
- (iii) Uniforms were distributed among ..... students of class 3.
- (iv) In which class 25 uniforms were distributed ?  
 (a) class 1                      (b) class 2                      (c) class 4                      (d) class 5
- (v) Which class received the least number of uniforms ?  
 (a) Class 1                      (b) class 2                      (c) class 3                      (d) class 5
- (vi) Find the total number of students who received uniforms ?  
 (a) 125                              (b) 25                              (c) 65                              (d) 100

2. Students of a particular school who have liking for different types of fruits.



If there are 20 children in a class.

- (i) Number of children who like mango is .....
- (ii) Find the number of children who like apple
  - (a) 20
  - (b) 5
  - (c) 15
  - (d) 10
- (iii) Find the total number of children who like apple and banana both.
  - (a) 5
  - (b) 20
  - (c) 10
  - (d) 15
- (iv) Banana has been liked the most (✓ or ✗)
- (v) Banana has been liked more than apple (✓ or ✗)



**Things to Remember :**

- ❖ Pictograph is a medium of representation of data in which we use pictures sign.
- ❖ In pictograph picture signs are used to represent the numbers.
- ❖ If the numbers are in excess, we represent with picture symbols.
- ❖ In Bar graph, we use rectangular bars instead of pictures.
- ❖ To represent data in the fractional form we use pie chart.

### Learning Outcomes

- Students are able to collect data related to daily life and find meaningful conclusion out of it.
- Students are able to collect the data of different activities in school and from the surroundings.
- Can read and explain the graphs given in newspaper and magazines.

## Answer Key

### Exercise 9.1

- |             |             |             |
|-------------|-------------|-------------|
| (a) 5       | (b) 20      | (c) 50      |
| (d) class 1 | (e) class 5 | (f) class 1 |
- .....

### Exercise 9.2

- |                   |                           |            |
|-------------------|---------------------------|------------|
| (a) 7             | (b) Friday                | (c) Monday |
| (d) none of these | (e) Tuesday and Wednesday |            |
- .....
- .....
- |                   |                   |        |       |
|-------------------|-------------------|--------|-------|
| (a) $\frac{3}{4}$ | (b) $\frac{1}{4}$ | (c) 24 | (d) 8 |
|-------------------|-------------------|--------|-------|
- 20

### Worksheet

- |       |        |          |        |       |        |
|-------|--------|----------|--------|-------|--------|
| (i) ✓ | (ii) × | (iii) 15 | (iv) b | (v) c | (vi) a |
|-------|--------|----------|--------|-------|--------|
- |        |        |         |        |       |  |
|--------|--------|---------|--------|-------|--|
| (i) 10 | (ii) b | (iii) c | (iv) × | (v) × |  |
|--------|--------|---------|--------|-------|--|





# PATTERNS

## OBJECTIVES :- To enable the students :

1. To prepare patterns related to division and multiples of 9
2. To prepare patterns of division and multiplication of 10 and 100
3. Students will be taught about symmetry and they will be able to draw symmetrical lines by different methods
4. To create interest in the subject, patterns will be prepared by doing addition and subtraction of numbers



In the previous classes, we have studied about patterns. We observed that for different patterns, some rule has been followed. Now, in this chapter we shall practice some more patterns

First of all we shall discuss about some picture patterns



## 10.1 Pattern

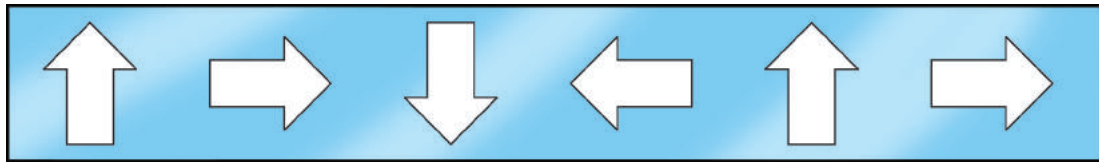
### Pattern - 1



In this pattern we observe all fishes are going in same direction.

**Pattern - 2**

The patterns has been formed with the help of an arrow moving in clockwise direction.



**10.2 Activities on number 9**

**Think about table of 9**



Let us do interesting activities for multiples of 9

|   |   |    |   |    |
|---|---|----|---|----|
| 9 | × | 1  | = | 09 |
| 9 | × | 2  | = | 18 |
| 9 | × | 3  | = | 27 |
| 9 | × | 4  | = | 36 |
| 9 | × | 5  | = | 45 |
| 9 | × | 6  | = | 54 |
| 9 | × | 7  | = | 63 |
| 9 | × | 8  | = | 72 |
| 9 | × | 9  | = | 81 |
| 9 | × | 10 | = | 90 |

**Step - 1** Write 0

**Step - 2** Add 1 in it and write new number below it

**Step - 3** Move ahead till 9, using step 2.



**Step - 4** We get a column of 0 to 9

**Step - 5** Write 0 on the right hand of 9 and write 1,2,3....9 moving upwards.

**Step - 6** Finally we get a new column of numbers.

|   |     |
|---|-----|
| ↓ | 09  |
|   | 18  |
|   | 27  |
|   | 36  |
|   | 45  |
|   | 54  |
|   | 63  |
|   | 72  |
|   | 81  |
|   | 90↑ |

**10.2.1 Some more patterns using table 9.**



With the table of 9, we will form some more patterns of multiplication

Teacher will help the students to find patterns and ask the students to find some more patterns,

(a)

|       |   |       |   |        |
|-------|---|-------|---|--------|
| 9     | × | 6     | = | 54     |
| 9     | × | 66    | = | 594    |
| 9     | × | 666   | = | 5994   |
| 9     | × | 6666  | = | 59994  |
| 9     | × | 66666 | = | 599994 |
| ..... | × | ..... | = | .....  |
| ..... | × | ..... | = | .....  |
| ..... | × | ..... | = | .....  |

Now we prepare pattern of multiplication with the table of 9. Observe the given patterns

(b)

|       |   |       |   |       |
|-------|---|-------|---|-------|
| 9     | × | 111   | = | 0999  |
| 9     | × | 222   | = | 1998  |
| 9     | × | 333   | = | 2997  |
| 9     | × | 444   | = | 3996  |
| 9     | × | 555   | = | 4995  |
| 9     | × | 666   | = | 5994  |
| ..... | × | ..... | = | ..... |
| ..... | × | ..... | = | ..... |



### 10.2.2 Multiple of 9

If the sum of all digits of a number is divided by 9, The number is multiple of 9.

For example :- 2142

$$2 + 1 + 4 + 2 = 9$$

$$\begin{array}{r} 9 \overline{) 2142} \quad (238 \\ \underline{18} \phantom{00} \\ 34 \phantom{0} \\ \underline{27} \phantom{0} \\ 72 \\ \underline{72} \\ \times \end{array}$$

Similarly we extend the pattern by excluding 9 and find other multiples of 9.

**Example 1 :** Is the number 9198 multiple of 9?

**Solution :** ♦ First of all omit 9 from the given number

$$\cancel{9}1\cancel{9}8$$

Remaining digits of number are = 1,8

♦ Now add the remaining digit i.e.,  $(1 + 8) = 9$

omit this 9, now there is no digit left = 1 8

$$\begin{array}{l} \boxed{1} \quad \boxed{8} \\ \rightarrow 1 + 8 = 9 \end{array}$$

♦ Hence this number is multiple of 9.

**Example 2 :** Is the number 2574 multiple of 9?

**Solution :** We observe that digit '9' is not there. We add 2 and 7, 5 and 4

$$\begin{array}{c} \boxed{2} \quad \boxed{7} \quad \boxed{4} \\ \boxed{5} \end{array}$$

Here  $2 + 7 = 9$

and  $5 + 4 = 9$

No other digit is left behind so this number is multiple of 9

In a simple way the sum of all the digits of this number is multiple of 9 hence the number can be divided by 9.

**Example 3 :** Is the number 4329 a multiple of 9?

**Solution :** First of all omit 9 from the given number.

4 3 2 9

Digits left = 432

Now add all the numbers whose sum is 9

i.e.,  $4 + 3 + 2 = 9$

Now there is no digit left behind. Therefore this number is multiple of 9

**Example 4 :** Is the number 4573 a multiple of 9?

**Solution :** In this number digit 9 is not found.

Now we add those digits whose sum is 9

4 5 7 3

$4 + 5 = 9$

Sum of the digits is  $7 + 3 = 10$

Because sum of digits is not 9. Hence this number is not a multiple of 9

The Teacher can prove the above facts by dividing these number by 9.

### 10.3 Multiplication and Division using 10 and 100.



Multiplication with 10 is easy  
Just put on the right,  
the single digit zero  
You can check it by doing its  
multiplication and become a  
hero.

$$2 \times 10 = 20$$



Multiplication with 100 is easy  
Just put on the right,  
the double zero  
You can check it by doing its  
multiplication and become a  
hero.

$$2 \times 100 = 200$$



$$6 \times 10 = 60 \qquad 6 \times 100 = 600$$

$$10 \times 10 = 100 \qquad 10 \times 100 = 1000$$

In this pattern we observe that when number is multiplied by 10. We put 0 at end of the given number and if the number is multiplied by 100 we put '00' at the end.

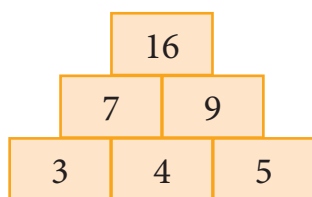
$$200 \div 10 = 20 \qquad 200 \div 100 = 2$$

$$1000 \div 10 = 100 \qquad 1000 \div 100 = 10$$

Similarly, When number is divided by 10 .We remove 0 at the end of the numbers and if the number is divided by 100 we remove '00' at the end of the given number.

### 10.4 Tower of the number

We can prepare pattern by arranging the numbers like a tower.



$$3 + 4 = 7 \qquad 4 + 5 = 9$$

$$7 + 9 = 16$$

### 10.5 Patterns from continuous addition

#### Three consecutive numbers

$$1 + 2 + 3 = 6$$

$$2 + 3 + 4 = 9$$

$$3 + 4 + 5 = 12$$

.....

.....

$$8 + 9 + 10 = 27$$

All additions are multiple of 3 and three times the number in middle

#### Four consecutive numbers

$$1 + 2 + 3 + 4 = 10$$

$$2 + 3 + 4 + 5 = 14$$

$$3 + 4 + 5 + 6 = 18$$

.....

.....

$$10 + 11 + 12 + 13 = 46$$

Addition is increasing by 4 and answer is double the sum of two middle numbers

### 10.6 Two or three digits number ending with 5 .multiplication of the number by itself

|   |  |   |
|---|--|---|
| $\begin{array}{r} 1 \ 5 \\ \times 1 \ 5 \\ \hline 2 \ 25 \\ \downarrow \\ 1 \times 2 = 2 \end{array}$ | $\begin{array}{r} 3 \ 5 \\ \times 3 \ 5 \\ \hline 1 \ 2 \ 25 \\ \downarrow \\ 3 \times 4 = 12 \end{array}$ | $\begin{array}{r} 1 \ 1 \ 5 \\ \times 1 \ 1 \ 5 \\ \hline 1 \ 3 \ 2 \ 25 \\ \downarrow \\ 11 \times 12 = 132 \end{array}$ |
|---|--|---|

We observe here on unit's place 5 multiplied by 5, we get 25 and digits on ten's place is multiplied by the digit after adding 1 in it.

### 10.7 From subtraction to addition

Read following pattern :

|                |   |                |   |         |
|----------------|---|----------------|---|---------|
| $(2 \times 2)$ | — | $(1 \times 1)$ | = | $2 + 1$ |
| $(3 \times 3)$ | — | $(2 \times 2)$ | = | $3 + 2$ |
| $(4 \times 4)$ | — | $(3 \times 3)$ | = | $4 + 3$ |
| $(5 \times 5)$ | — | $(4 \times 4)$ | = | $5 + 4$ |

.....  
 .....

**Example 5 :** Some patterns are given as under. Write next three'.

- (A) 7, 17, 27, 37, ....., ....., .....
- (B) 2, 6, 18, ....., ....., .....

**Solution :** (a)  $17 - 7 = 10$       $27 - 17 = 10$       $37 - 27 = 10$

we see that every next number is 10 more than its previous number so next three numbers are

$37 + 10 = 47$       $47 + 10 = 57$       $57 + 10 = 67$

i.e., 7, 17, 27, 37, **47, 57, 67**

- (b) In this pattern every next number is three times its previous number so next three numbers are



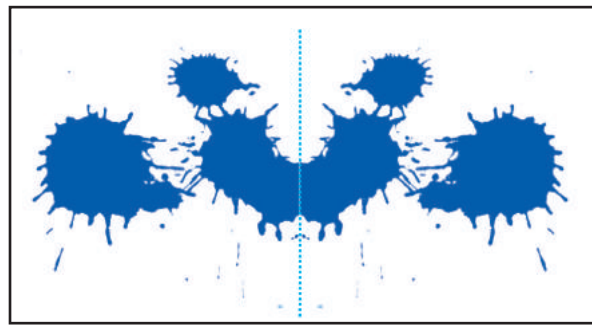
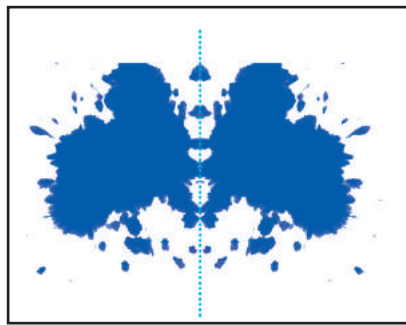
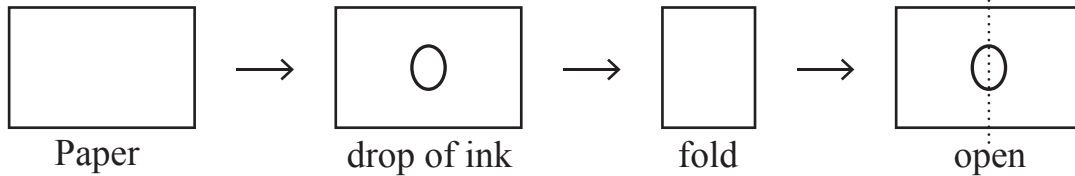
$$2, 6, 18, \quad 18 \times 3 \quad 54 \times 3 \quad 162 \times 3$$

$$= 54 \quad = 162 \quad = 486$$

i.e. :- 2, 6, 18, **54, 162, 486**

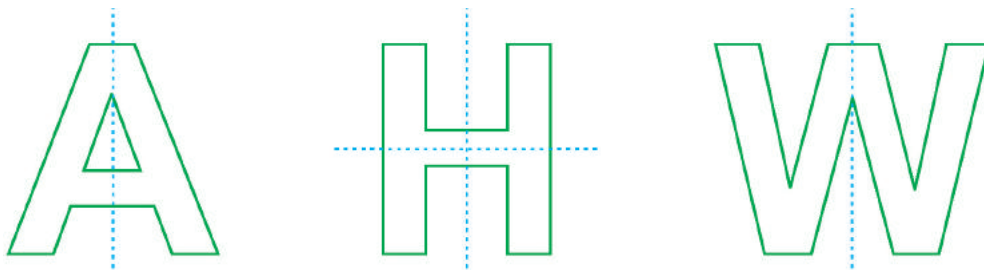
### 10.8 Symmetry

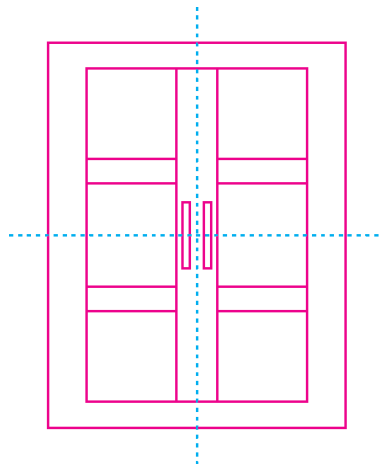
The teacher will tell the students about symmetry by putting a drop of ink on a paper and folding the paper from the middle



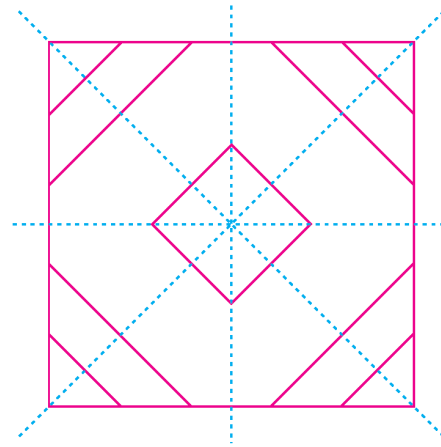
Symmetry = +  
 ↓                      ↓  
 equal      measurement

A line which divides a figure into two equal parts





Pattern of window



Pattern of floor

### Exercise 10.1

1. Observe the pattern carefully and complete it.

|     |  |  |  |  |  |
|-----|--|--|--|--|--|
| (a) |  |  |  |  |  |
| (b) |  |  |  |  |  |
| (c) |  |  |  |  |  |
| (d) |  |  |  |  |  |
| (e) |  |  |  |  |  |

#### Hint For Teacher

- Teacher will draw a picture on the paper and keep a mirror in the middle and show the students that pictures inside the mirror and picture on the paper will combine to make a complete image.



**2. Verify the multiples of 9 leaving 9. Whether it is multiple of 9 or not.**

- (a) 9981                      (b) 6039                      (c) 243                      (d) 6308  
 (e) 6415                      (f) 9108                      (g) 1728                      (h) 8714  
 (i) 53694                      (j) 40819

**3. Multiply the given numbers using pattern**

- (a)  $35 \times 10 = \dots\dots\dots$                       (f)  $2 \times 100 = \dots\dots\dots$   
 (b)  $9 \times 10 = \dots\dots\dots$                       (g)  $20 \times 100 = \dots\dots\dots$   
 (c)  $21 \times 10 = \dots\dots\dots$                       (h)  $38 \times 100 = \dots\dots\dots$   
 (d)  $106 \times 10 = \dots\dots\dots$                       (i)  $209 \times 100 = \dots\dots\dots$   
 (e)  $148 \times 10 = \dots\dots\dots$                       (j)  $406 \times 100 = \dots\dots\dots$

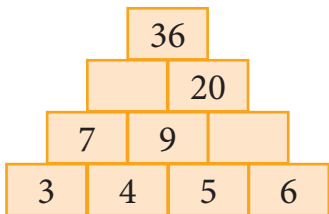
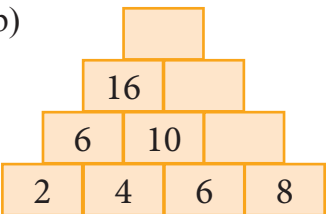
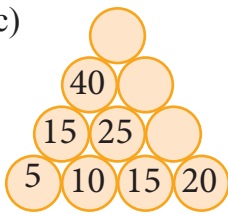
**4. Divide the given numbers( using patterns)**

- (a)  $60 \div 10 = \dots\dots\dots$                       (d)  $600 \div 100 = \dots\dots\dots$   
 (b)  $700 \div 10 = \dots\dots\dots$                       (e)  $1500 \div 100 = \dots\dots\dots$   
 (c)  $960 \div 10 = \dots\dots\dots$                       (f)  $1000 \div 100 = \dots\dots\dots$

**5. Fill in the blanks**

- (a)  $\dots\dots\dots \times 10 = 500$                       (c)  $\dots\dots\dots \times 100 = 900$   
 (b)  $\dots\dots\dots \div 10 = 96$                       (d)  $\dots\dots\dots \div 100 = 7$

**6. Complete the following towers.**

(a)  (b)  (c) 

**7. Multiply the given numbers in one line**

- (a) 
$$\begin{array}{r} 25 \\ \times 25 \\ \hline \hline \end{array}$$
                      (b) 
$$\begin{array}{r} 55 \\ \times 55 \\ \hline \hline \end{array}$$
                      (c) 
$$\begin{array}{r} 75 \\ \times 75 \\ \hline \hline \end{array}$$
  
 (d) 
$$\begin{array}{r} 125 \\ \times 125 \\ \hline \hline \end{array}$$
                      (e) 
$$\begin{array}{r} 105 \\ \times 105 \\ \hline \hline \end{array}$$
                      (f) 
$$\begin{array}{r} 405 \\ \times 405 \\ \hline \hline \end{array}$$

**8. Solve :**

(a)  $(13 \times 13) - (12 \times 12)$

(d)  $(120 \times 120) - (119 \times 119)$

(b)  $(18 \times 18) - (17 \times 17)$

(e)  $(151 \times 151) - (150 \times 150)$

(c)  $(35 \times 35) - (34 \times 34)$

**9. Complete the series according to pattern :**

(a)  $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55$

$11 + 12 + 13 + 14 + \dots + 19 + 20 = 155$

$21 + 22 + 23 + 24 + \dots + 29 + 30 = 255$

$31 + 32 + 33 + 34 + \dots + 39 + 40 = \dots$

$41 + 42 + 43 + 44 + \dots + 49 + 50 = \dots$

$51 + 52 + 53 + 54 + \dots + 59 + 60 = \dots$

(b)  $1 \times 1 = 1$

$11 \times 11 = 121$

$111 \times 111 = 12321$

$1111 \times 1111 = 1234321$

$11111 \times 11111 = \dots$

$111111 \times 111111 = \dots$

$1111111 \times 1111111 = \dots$

**10. Find an easy method to complete the series .Write next three numbers using this method.**

(a) 7, 12, 17, ....., ....., .....

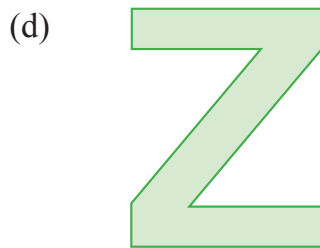
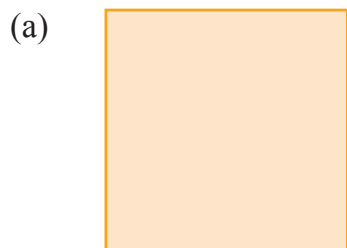
(d) 66, 55, 44, ....., ....., .....

(b) 2, 4, 8, ....., ....., .....

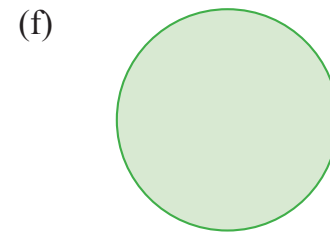
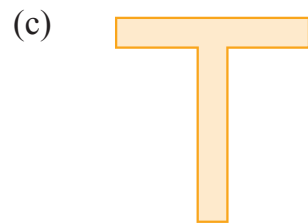
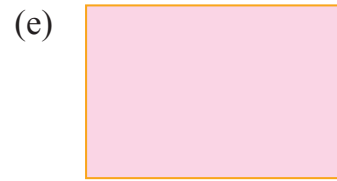
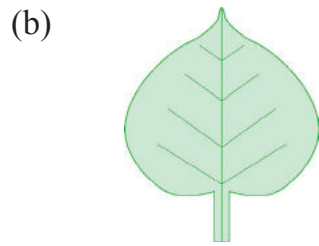
(e) 108, 208, 308, ....., ....., .....

(c) 100, 90, 80, ....., ....., .....

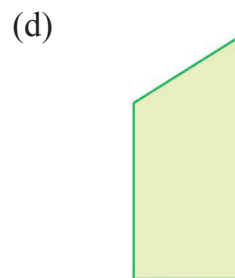
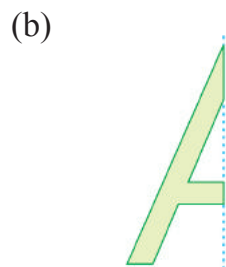
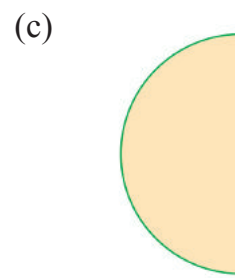
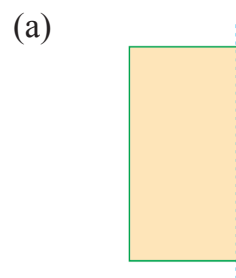
(f) 40, 39, 38, ....., ....., .....

**11. Draw symmetry lines in the following :**





**12. Complete the given symmetrical patterns :**



**Learning Outcomes**

The students will be able to :

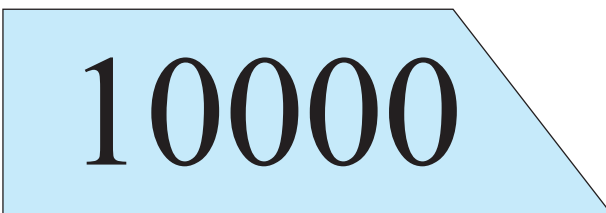
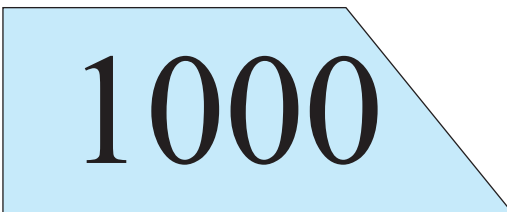
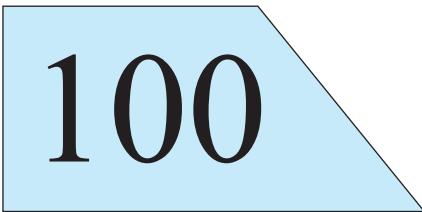
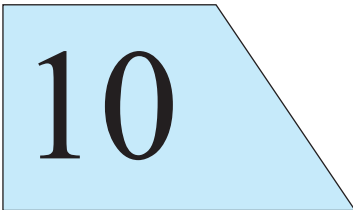
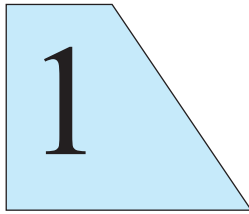
- Prepare pattern related to division and multiples of 9.
- Prepare patterns of division and multiplication of 10 and 100.
- To understand the symmetry and symmetrical lines.
- Prepare patterns using addition, subtraction of numbers.



## Answer Key

### Exercise 10.1

2. (a) Multiple (b) Multiple (c) Multiple  
 (d) Not a multiple (e) Not a multiple (f) Multiple  
 (g) Multiple (h) Not a multiple (i) Multiple  
 (j) Not a multiple
3. (a) 350 (b) 90 (c) 210 (d) 1060  
 (e) 1480 (f) 200 (g) 2000 (h) 3800  
 (i) 20900 (j) 40600
4. (a) 6 (b) 70 (c) 96 (d) 6  
 (e) 15 (f) 10
5. (a) 50 (b) 960 (c) 9 (d) 700
6. (a)  $5 + 6 = 11$ ,  $7 + 9 = 16$   
 (b)  $6 + 8 = 14$ ,  $10 + 14 = 24$ ,  $16 + 24 = 40$   
 (c)  $15 + 20 = 35$ ,  $25 + 35 = 60$ ,  $40 + 60 = 100$
7. (a) 625 (b) 3025 (c) 5625 (d) 15625  
 (e) 11025 (f) 164025
8. (a)  $13 + 12$  (b)  $18 + 17$  (c)  $35 + 34$   
 (d)  $120 + 119$  (e)  $151 + 150$
9. (a)  $31 + 32 + 33 + \dots + 40 = 355$   
 $41 + 42 + 43 + \dots + 50 = 455$   
 $51 + 52 + 53 + \dots + 60 = 555$   
 (b)  $11111 \times 11111 = 1\ 2\ 3\ 4\ 5\ 4\ 3\ 2\ 1$   
 $111111 \times 111111 = 1\ 2\ 3\ 4\ 5\ 6\ 5\ 4\ 3\ 2\ 1$   
 $1111111 \times 1111111 = 1\ 2\ 3\ 4\ 5\ 6\ 7\ 6\ 5\ 4\ 3\ 2\ 1$
10. (a) 22, 27, 32 (b) 16, 32, 64 (c) 70, 60, 50  
 (d) 33, 22, 11 (e) 408, 508, 608 (f) 37, 36, 35



**Hints for the teacher**

- As given above, the teacher will prepare 'Mann Cards from 1-9, 10, 20, 30, 90, 100, 200, 300 ....., 900 and 1000, 2000, 3000 ..... 9000 and will form numbers as given in Lesson 1.