Govt of Karnataka

# MATHEMATICS

**Textbook cum Workbook**

**(Revised)**

**English Medium**

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3

# Third Standard

## Part - I

**Karnataka Text Book Society (R.)**
6th Cross, Malleshwaram
Bengaluru-560 003

# PREFACE

The Textbook Society, Karanataka has been engaged in producing new textbooks according to the new syllabi prepared which in turn are designed based on NCF - 2005 since June 2010. Textbooks are prepared in 12 languages; seven of them serve as the media of instruction. From standard 1 to 4 there are the EVS, mathematics and 5th to 10th there are three core subjects namely mathematics, science and social science.

**NCF - 2005 has a number of special features and they are:**

- Connecting knowledge to life activities.
- Learning to shift from rote methods.
- Enriching the curriculum beyond textbooks.
- Learning experiences for the construction of knowledge.
- Making examinations flexible and integrating them with classroom experiences.
- Caring concerns within the democratic policy of the country.
- Make education relevant to the present and future needs.
- Softening the subject boundaries, integrated knowledge and the joy of learning.
- The child is the constructor of knowledge.

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The new books are produced based on three fundamental approaches namely, Constructive Approach, Spiral Approach and Integrated Approach.

The learner is encouraged to think, engage in activities, master skills and competencies. The materials presented in these books are integrated with values. The new books are not examination oriented in their nature. On the other hand they help the learner in the all round development of his/her personality, thus help him/her become a healthy member of a healthy society and a productive citizen of this great country, India.

Young learners in their initial stages of learning i.e., between the ages of 5 and 10, acquire most of the concepts which they need in consolidating learning in later stages. If this learning is

properly planned and well executed in the classroom, children may find learning easy and enjoyable.

Based on these principles, in the early stages from class 1 to 5, the following subject areas have been introduced- Mother tongue, state language, English as a practice language, mathematics and environmental studies. Environmental studies include science and social science related to their daily life experiences, information about their environment, society, country, their duties and rights. These topics are presented through interesting situations and activities. Opportunities have been provided for self learning and creativity. In this stage importance is given to children sitting in pairs and groups and exchange their experiences. The efforts have been made to make illustrations colourful, attractive and meaningful. Teachers are expected to make use of these and help children learn meaningfully and with pleasure. The textbooks aim at making learning interesting, enjoyable and satisfying.

The Textbook Society expresses grateful thanks to the chairpersons, writers, scrutinisers, artists, staff of DIETs and CTEs and the members of the Editorial Board and printers in helping the Text Book Society in producing these textbooks.

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**Nagendra Kumar**
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# Foreword

A textbook is a very important learning material for students. We have prepared the third standard textbook based on NCF 2005 and KCF 2007. The Text is developed on the basis of National policy on education 1986 and NCF 2005. We have also kept before us the syllabus prepared by DSERT.

At the time of developing this textbook we have adopted best features from CBSC textbooks and the textbooks of other states. The significence of this textbook is to remove the fear that "Mathematics is difficult" from the minds of the learners by using all the possibilities of learning. This textbook helps them in self learning.

We have adopted the following factors for self learning purposes.

- attractive multi-colour figures
- Simple language skills
- More numbers of activities
- Easy communicative language for rural students.
- Encourage Mathematics through Enterainment.
- Simple steps involved in solving problems

With the help of the textbook the teacher learns and teaches mathematics meaningfully.

I thank officers of the department and all the teachers involved in the team of framing this textbook for they have rendered in the process.

**K. Shamanna**
**Chairperson**
**Text Book committee.**

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# Text book Committee

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# About the Revision of Textbooks

Honourable Chief Minister Sri Siddaramaiah who is also the Finance Minister of Karnataka, in his response to the public opinion about the new textbooks from standard I to X, announced, in his 2014-15 budget speech of constituting an expert-committee, to look into the matter. He also spoke of the basic expectations there in, which the textbook experts should follow: "The textbooks should aim at inculcating social equality, moral values, development of personality, scientific temper, critical acumen, secularism and the sense of national commitment", he said.

Later, for the revision of the textbooks from class I to X, the Department of Education constituted twenty seven committees and passed an order on 24-11-2014. The committees so constituted were subject and class-wise and were in accordance with the standards prescribed. Teachers who are experts in matters of subjects and syllabi were in the committees.

There were already many complaints, and analyses about the textbooks. So, a freehand was given in the order dated 24-11-2014 to the responsible committees to examine and review text and even to prepare new text and revise if necessary. Eventually, a new order was passed on 19-9-2015 which also gave freedom even to re-write the textbooks if necessary. In the same order, it was said that the completely revised textbooks could be put to force from 2017-18 instead of 2016-17.

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Many self inspired individuals and institutions, listing out the wrong information and mistakes there in the text, had sent them to the Education Minister and to the Textbook Society. They were rectified. Before rectification we had exchanged ideas by arranging debates. Discussions had taken place with Primary and Secondary Education Teachers' Associations. Questionnaires were administered among teachers to pool up opinions. Separate meetings were held with teachers, subject inspectors and DIET Principals. Analytical opinions had been collected. To the subject experts of science, social science, mathematics and languages, textbooks were sent in advance and later meetings were held for discussions. Women associations and science related organistation were also invited for discussions. Thus, on the basis of all inputs received from various sources, the textbooks have been revised where ever necessary.

Another very important aspect has to be shared here. We constituted three expert committees. They were constituted to make suggestions after making a comparative study of the texts of science, mathematics and social science subjects of central schools (NCERT), along with state textbooks. Thus, the state text books have been enriched based on the comparative analysis and suggestions made by the experts. The state textbooks have been guarded not to go lower in standards than the textbooks of central school. Besides, these textbooks have been examined along side with the textbooks of Andhra Pradesh, Kerala, Tamil Nadu and Maharashtra states.

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Another clarification has to be given here. Whatever we have done in the committees is only revision, it is not the total preparation of the textbooks. Therefore, the structure of the already prepared textbooks have in no way been affected or distorted. They have only been revised in the background of gender equality, regional representation, national integrity, equality and social harmony. While doing so, the curriculum frames of both central and state have not been transgressed. Besides, the aspirations of the constitution are incorporated carefully. Further, the reviews of the committees were once given to higher expert committees for examination and their opinions have been inculcated into the textbooks.

Finally, we express our grateful thanks to those who strived in all those 27 committees with complete dedication and also to those who served in higher committees. At the same time, we thank all the supervising officers of the Textbook Society who sincerely worked hard in forming the committees and managed to see the task reach its logical completion. We thank all the members of the staff who co-operated in this venture. Our thanks are also due to the subject experts and to the associations who gave valuable suggestions.

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**Prof. Baraguru Ramachandrappa**

**Chairman-in-Chief**
**Textbook Revision Committee**
**Bengaluru.**

# Text Books Revision Committee

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# Part - I

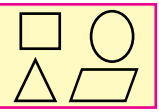
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# Chapter 1 Shapes



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**After studying this chapter you**

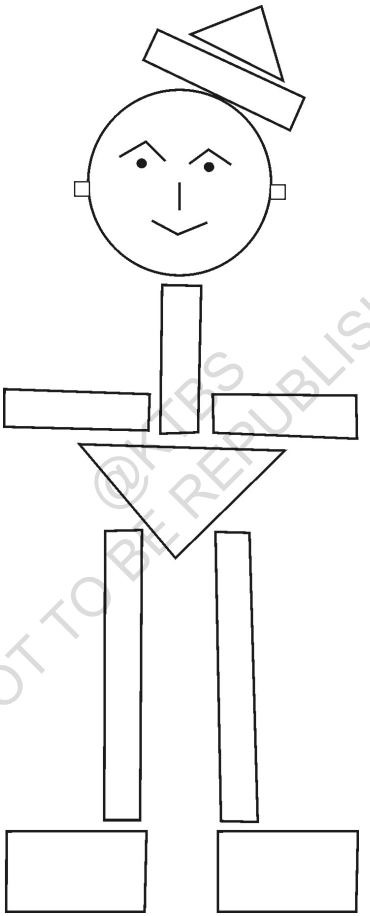
- identify 2-D shapes formed by paper folding and paper cuttings.
- name and compare various 2-D shapes by counting their sides, corners and diagonals.
- construct some simple 3-D objects using a ruler/free hand.
- by piling coins and by piling bangles construct solid cylinder and hollow cylinder respectively and also establish relation between 2-D and 3-D objects.
- arrange the tiles of familiar shape in a given region.
- distinguish between similar shaped tiles and dissimilar shaped tiles.
- read simple map.
- make shapes using straight lines and curves on the dot-grid.
- construct various shapes using tangram pieces.

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# Playing with shapes

**You are familiar with some shapes in your previous class, identify the similar shaped figures and colour them.**

Note : Red = Green = Yellow = Blue =



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**In the above picture**

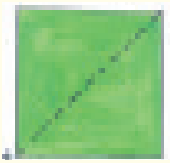
- Red coloured shapes are called .....
- Green coloured shapes are called .....
- Yellow coloured shapes are called .....
- Blue coloured shapes are called .....

## 2 - Dimensional objects



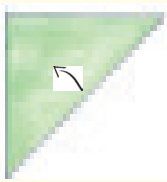
### Step 1

Take a square paper.



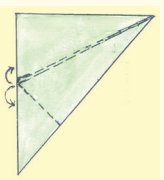
### Step 2

Fold the paper as shown in the picture.



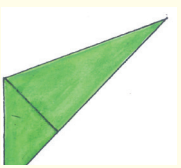
### Step 3

Hold the paper as shown in the picture.



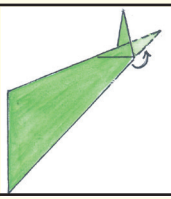
### Step 4

Fold again on the sides as shown in the picture.



### Step 5

Hold the paper like this as shown in the picture.



### Step 6

Fold the corner of the triangle as shown in the picture.

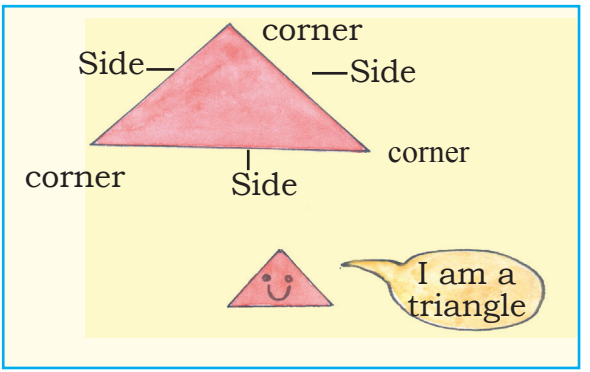


### Step 7

Insert the folded part into triangle shaped paper and get the shape of a 'bird'.

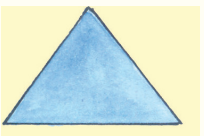
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## Who am I ?

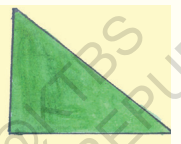



I am a plane figure with 3 sides and 3 corners.
Who am I ?
My name is .....

## Triangles



Sides .....
Corners .....

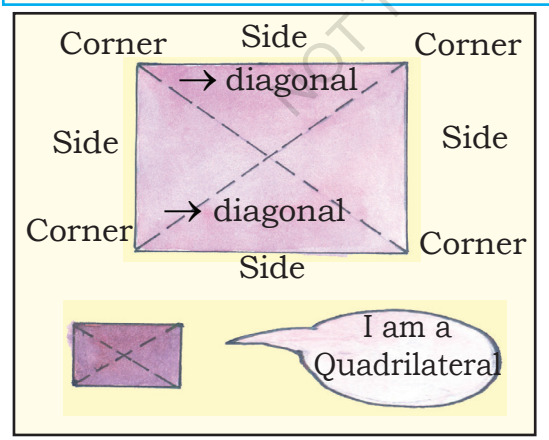


Sides .....
Corners .....



Sides .....
Corners .....

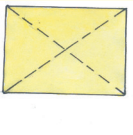
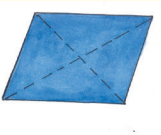
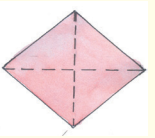
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The lines which join the opposite corners of a quadrilateral are called diagonals

I am a plane figure with 4 sides, 4 corners and 2 diagonals. Who am I ?
My name is.....

## Quadrilaterals

| | | | |
|---|---|---|---|
|  |  |  |  |
| Sides _____<br>Corners ___<br>Diagonals __ | Sides _____<br>Corners _____<br>Diagonals ____ | Sides ____<br>Corners __<br>Diagonals __ | Sides _____<br>Corners _____<br>Diagonals _____ |

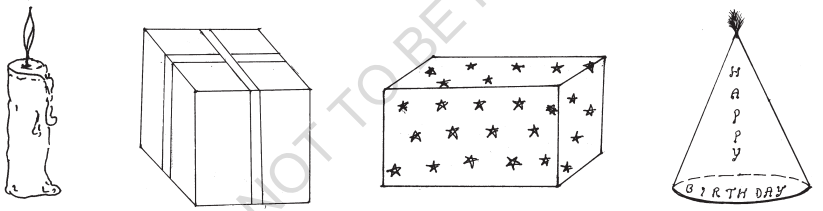
### Remember

- Triangle - Sides = 3, Corners = 3
- Quadrilateral - Sides = 4 Corners - 4, Diagonals - 2

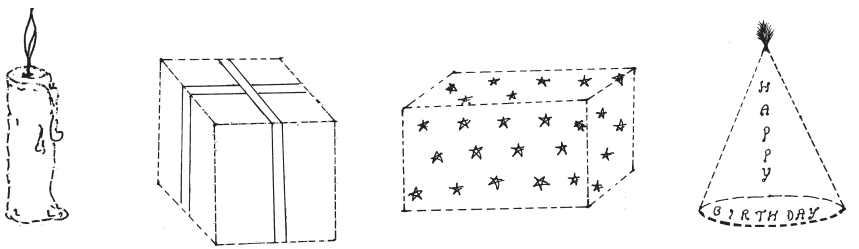
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## Three Dimensional Shapes

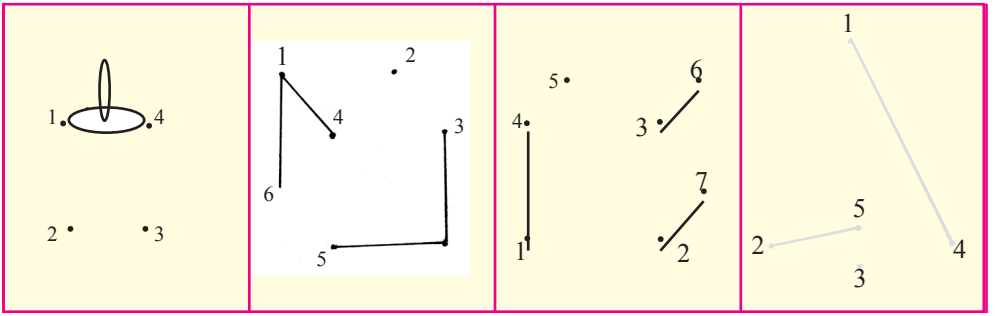
- **Colour the following pictures**




- **Join the dots and complete the pictures and identify the dimensions.**



- **Join the numbers by straight line.**




- **Draw the above pictures by using scale, or by free hand drawing.**

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**Remember**

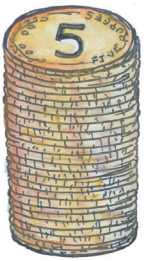
3 - dimensional object has length, breadth and height

## Solid cylinder and hollow cylinder

The house you are living in is built of walls. What we need to construct walls ?

Walls are formed by keeping bricks one above the other. (with the help of sand mixed with cement) Houses will be bigger as the walls become big in size.

**Activity :** 25 coins and 25 bangles are kept on a table. Now place them one above the other.



Coins kept one on the other.

These shapes are formed

What are these shapes called ?



Bangles kept one on the other

**3-D cylinder shapes** are formed when coins and bangles are placed one above the other.

**Remember**

- When coins are placed one above the other we get a solid cylinder.
- When bangles are placed one above the other we get a hollow cylinder.

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## Excercise 1.1

**1. Complete the following table :**

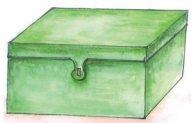
| Shape | Sides | Corners | Diagonals |
|---|---|---|---|
|  | | | |
|  | | | |
|  | | | |

## 2. Read the following statements and write true (✓) or false (×)

1) A triangle has 4 sides ( )
2) A triangle has 3 corners ( )
3) A quadrilateral has 3 sides ( )
4) A quadrilateral has 4 corners ( )
5) A quadrilateral has no diagonals ( )

## 3. Observe the given figures and mark 2-D objects by (✓) and 3-D objects by (×)

a) ☐ b)  ☐ c)  ☐

d)  ☐ e)  ☐ f)  ☐

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## 4. Colour the solid cylinder with red and hollow cylinder with green.



Iron rod



Plastic pipe



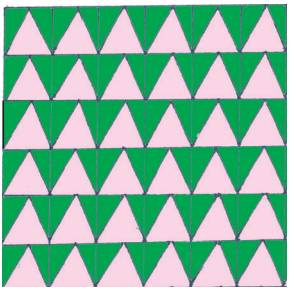
wax candle



Thread reel

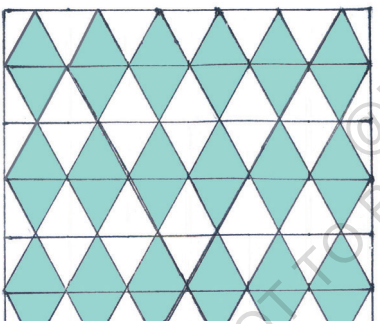
## Tiles

Niveditha and Dayananda go to Vijayanada's newly constructed house. They observe the tiles placed in the rooms as shown in the figure.

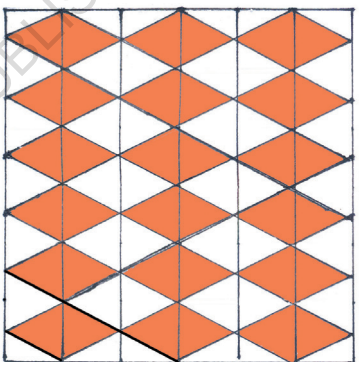


Meantime Vijayananda's father came and asked, what they were looking at. Both of them asked whether they could place the tiles in different ways? Yes, you can do it and asked them to arrange tiles in desired patterns and they arranged the tiles as shown below.

Children, how do you arrange '△' shaped tiles?



**Tiles arranged by Nivedita**



**Tiles arranged by Dayananda**

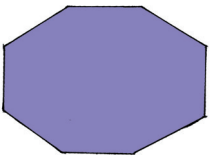
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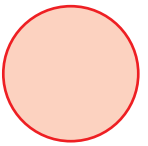
**Remember**

**By arranging different shaped tiles in differnt ways, various patterns can be obtained.**

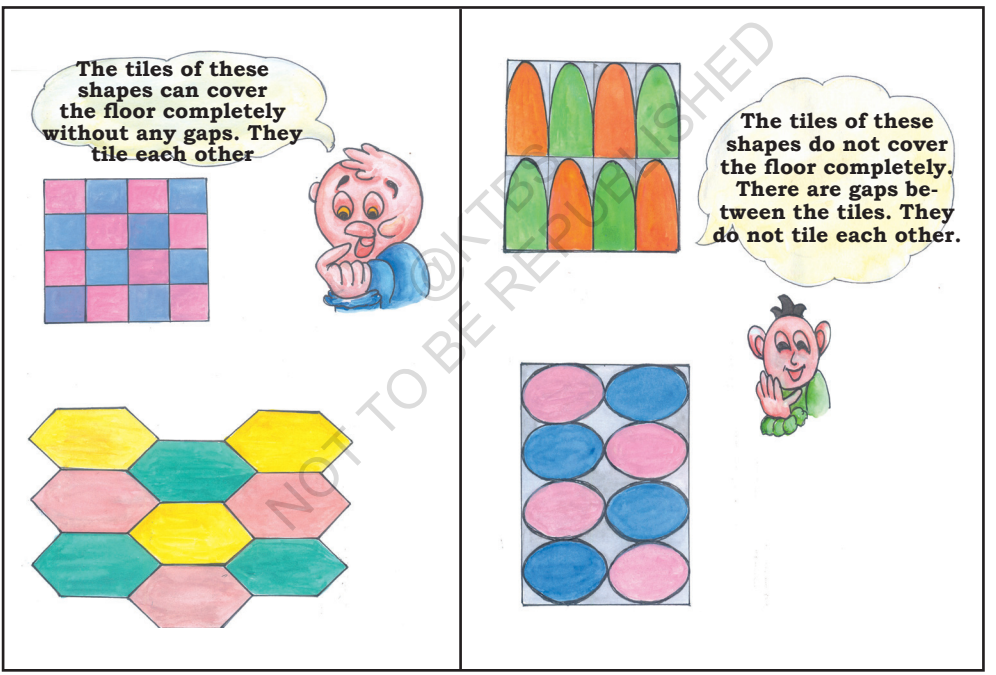
## Tiling and non-tiling tiles

- **If you are asked to lay the tiles for the house which of these will be a matching tile?**





- **Observe the arrangement of the following tiles.**




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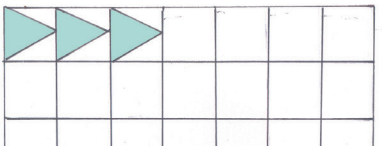
### Remember

- While laying the same shaped tiles, if they cover the floor without gap, then they are tiling tiles.
- While laying the same shaped tiles, if there are gaps between the tiles then they are non tiling tiles.

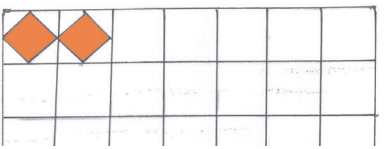
## Exercise 1.2

### I. Complete the following as shown below.

i)



ii)

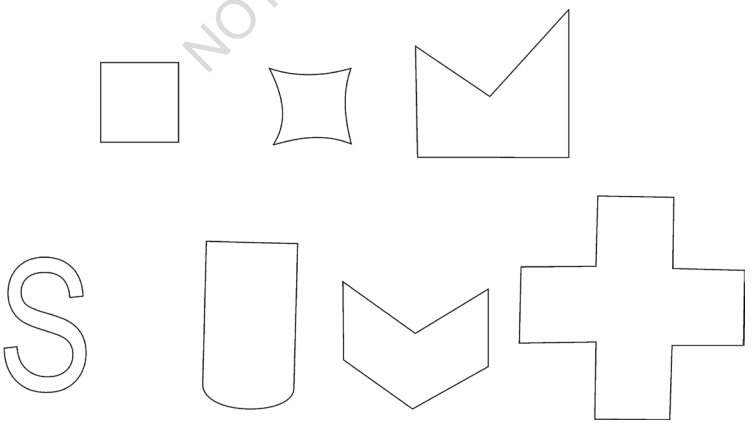


### II. Activity :

Prepare the following shapes using a cardboard. Prepare 10 pieces of each and arrange them. Seperate them into shapes which fit properly and which do not fit properly.

**Note :** Colour **green** to the shapes which fits properly.
Colour **red** to the shapes which do not fit properly.

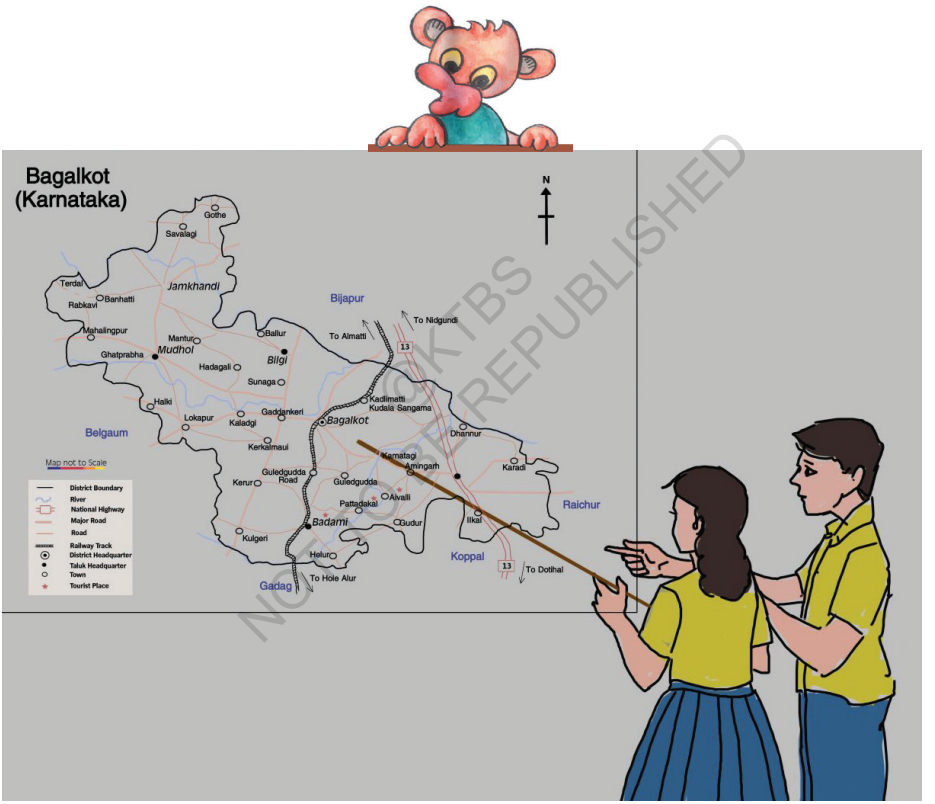
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# Map

Niharika and Nishant left Bengaluru with their parents to see some historical places and arrived at Bagalkot railway station.

Nishant was curious when he saw the map of Bagalkot. Niharika had some knowledge about the map, she started explaining the map to Nishant.




**Nishant :** Niharika, why is this sign only near Bagalkot ?

**Niharika:** This sign indicates the Head Quarters of Bagalkot District.

**Nishant** : What does this sign  indicate ?

**Niharika** : It indicates railway track.

**Nishant** : Which are the next stations from Bagalkot?

**Niharika** : Look here Nishant, first Guledagudda, then Badami.

**Nishant** : What do these yellow signs  indicate?

**Niharika** : These yellow signs indicate tourist places. Here are Badami cave temples.

**Nishant** : Which are the other tourist places near Badami ?

**Niharika** : Banashankari Temple, Mahakoota, Pattadakallu, Ihole are near Badami.

**Nishant** : Which place is nearer to Badami ? Is it Pattadakallu or Ihole ?

**Niharika** : Pattadakallu.

**Nishant** : What does ~ this blue line indicate which passes through Pattadakallu and Ihole ?

**Niharik** : Nishant, ~ this line indicates a river, it is Malaprabha.

**Nishant** : In the same way there is one more sign of river at the top. Which river is that ?

**Niharika** : That is river Krishna.

**Nishant** : Sister, do these rivers join ?

**Niharika** : Yes Nishant, they join at Koodalasangama, the place where lord Basavanna attained mukti.

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**Nishant** : Are we going there ?

**Niharika** : Yes ! We are going there.

**Nishant** : Which town is nearer to Koodalasangama ?

**Niharika** : Look there, it is Hunagunda.

**Nishant** : Is it necessary to come back to Bagalkot for going to Bangalore by bus ?

**Niharika** : No, Nishant ! We have the National Highway 'NH-13'. We are taking this road to reach Bengaluru.

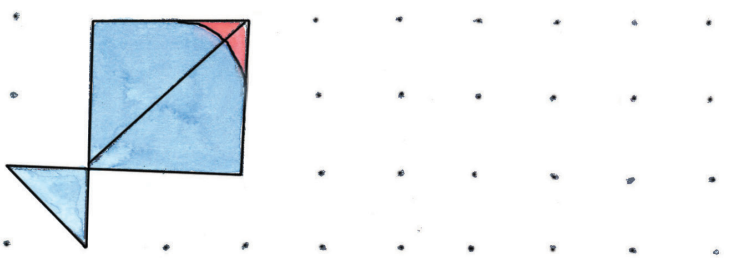
## Exercise 1.3

**Observe the map and answer the following :**

1. The place nearer to railway route Pattadakallu or caves of Badami [ ]
2. The place far away from the National Highway (NH13) Bagalkot or Badami [ ]
3. The place nearer to river Malaprabha railway station, Badami or Ihole [ ]

**1. Join dots and construct the required shape.**

**Example :** Kite.

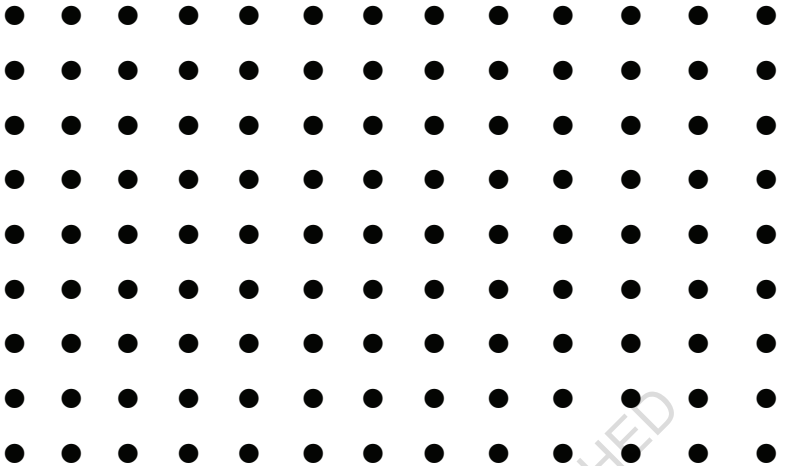


The above shape has 8 straight lines and 1 curved line.

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**2. Join dots and construct the following shapes.**

**(1) leaf (2) star (3) flower.**



**1st shape has ☐ straight lines and ☐ curved lines.**

**2nd shape has ☐ straight lines and ☐ curved lines.**

**3rd shape has ☐ straight line and ☐ curved lines.**

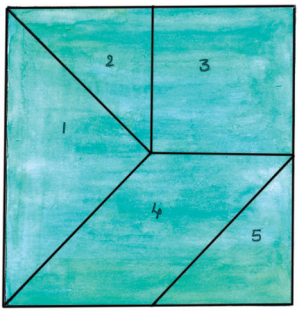
©KSEEBS NOT TO BE REPUBLISHED

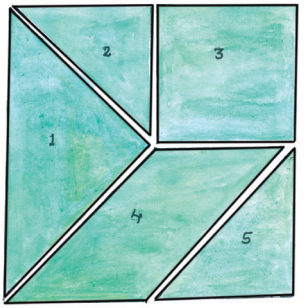
**Remember**

By using straight lines and curved lines, required shapes can be constructed.

## TANGRAM

Shapes create interest among human beings since ancient period. Chinese riddle shapes have become more popular. These shapes are called **"Tangrams".** To prepare the shapes of animals, birds, human beings and different objects by using pieces of tangrams, which needs intelligence and imagination and brings out hidden talents and also enhances creativity.



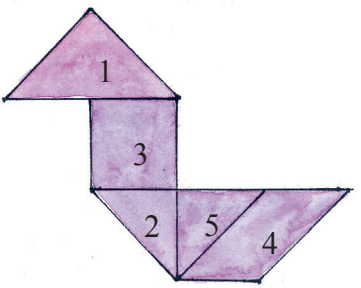

**Activity :** Get the impression of the above picture on a white paper. Cut the paper on lines and separate them.

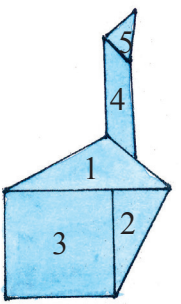
- How many 4 cornered shapes are there ? ☐
- How many 3 cornered shapes are there ? ☐
- How many same sized shapes are there ? ☐
- What is the total number of shapes ? ☐

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- Group of 5 pieces is called a '5 piece tangram'.
- Group of 7 pieces is called a '7 piece tangram.'

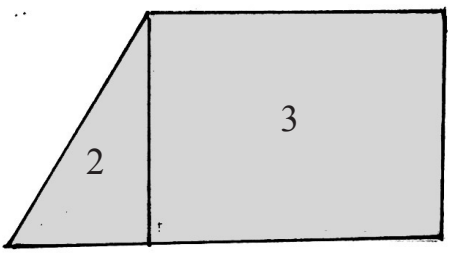
Use the following 5 pieces and try to prepare the shapes as shown below.



## Exercise 1.4

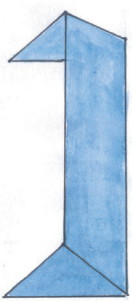
**1) Construct different shapes using the pieces 2 and 3**




**2) Prepare different shapes as you wish by using the pieces 1, 2, 3, 4, and 5.**

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**3) Observe the pieces used in the following shapes and name their numbers.**



Chapter 2

# NUMBERS

T6G9V3

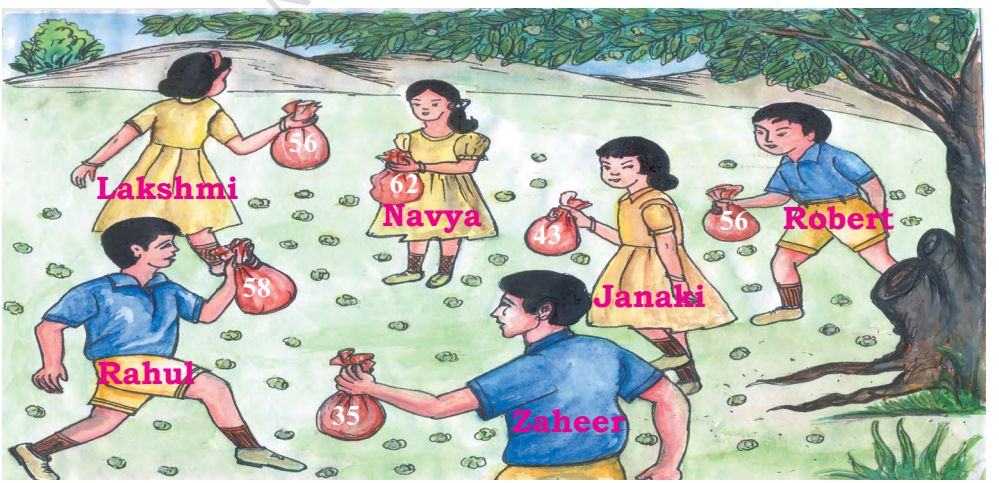
**After Studying this chapter you can**

- read and write numbers from 0 to 999,
- expand numbers with respect to place values,
- count numbers starting from any number and do skip counting,
- identify the greatest and smallest numbers when 3 or more numbers are given from 0 to 999,
- arrange the given numbers in the ascending and the descending orders,
- form greatest and smallest numbers by using given digits,
- identify 3 digit numbers on the number line,
- find the values of 3 digit numbers on number line.

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## Let us count (0-999)

Lakshmi, Rahul, Zaheer, Navya, Janaki, and Robert are collecting goose berries.



- Navya has collected the highest number of goose berries and the number is _____.
- The least number of goose berries collected by Zaheer is _____
- The same number of goose berries collected by Robert and Lakshmi are _____
- The number of childern who collected less than 50 goose berries are _____
- The number of childern who collected more than 50 goose berries are _____
- Number of goose berries to be collected by Janaki to make it 50 is _____

## Do and Learn

Collect a number of Pieces of sticks and make them into bundles of ten.

A bundle of 10 means ten.

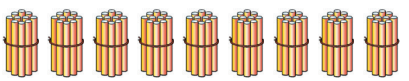
Two bundles of 10 means twenty.

Three bundles of 10 means thirty.

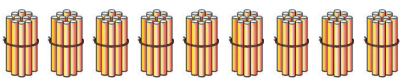
Like this nine bundles of 10 means ninety.

Now you add the sticks in nine bundles of 10.

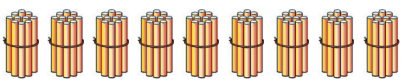
Nine bundles of 10 + one unit

 +  = 91 (Ninety one)

Nine bundles of 10 + two units

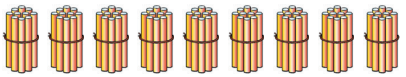
 +  = 92 (Ninety two)

Nine bundles of 10 + three units

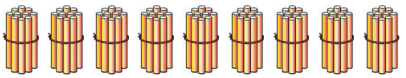
 +  = 93 (Ninety three)

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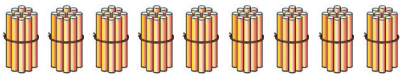
Nine bundles of 10 + Four units

 +  = 94 (Ninety four)

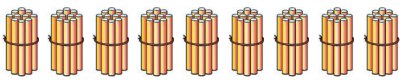
Nine bundles of 10 + five units

 +  = 95 (Ninety four)

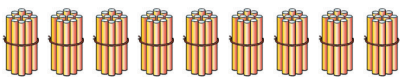
Nine bundles of 10 + six units

 +  = 96 (Ninety six)

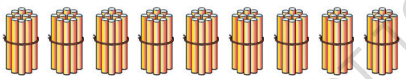
Nine bundles of 10 + seven units

 +  = 97 (Ninety seven)

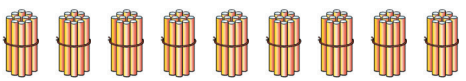
Nine bundles of 10 + eight units

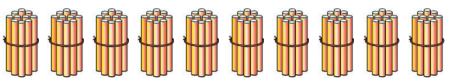
 +  = 98 (Ninety eight)

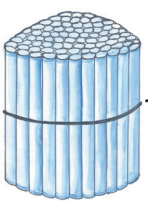
Nine bundles of 10 + nine units

  = 99 (Ninety nine)

Nine bundles of 10 + ten units)

 +  = 100 (hundred)





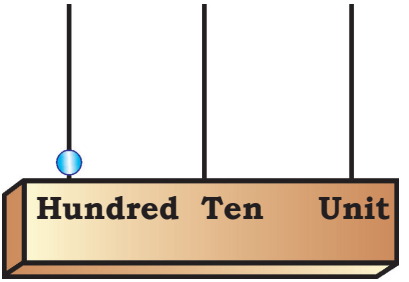
= 100
(One hundred )

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One hundred in place value

| Hundred | Ten | Unit |
|---|---|---|
| 1 | 0 | 0 |

One hundred in Abacus




**Note :** Collect ice cream sticks, seeds, beads, marbles etc., and learn counting

**Know this**

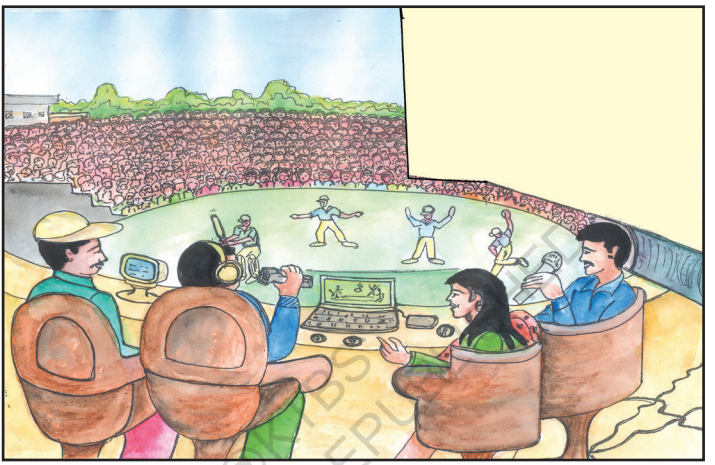
- 1 is added to 99 to get one hundred.
- 10 bundles of 10 give one hundred.
- 100 is a three digit number.
- The smallest three digit number is 100.
- In 100, '0' is in units place and the second '0' in tenth place, '1' is in hundredth place.

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# Dravid's Century

Observe the Ranaji cricket match played between Karnataka and Mumbai held at Chinnaswamy stadium, Bengaluru.

Rahul Dravid, Captain of Karnataka team has scored 94. How many runs does he need, to complete 100 runs ?



In cricket, 100 runs is called a century.

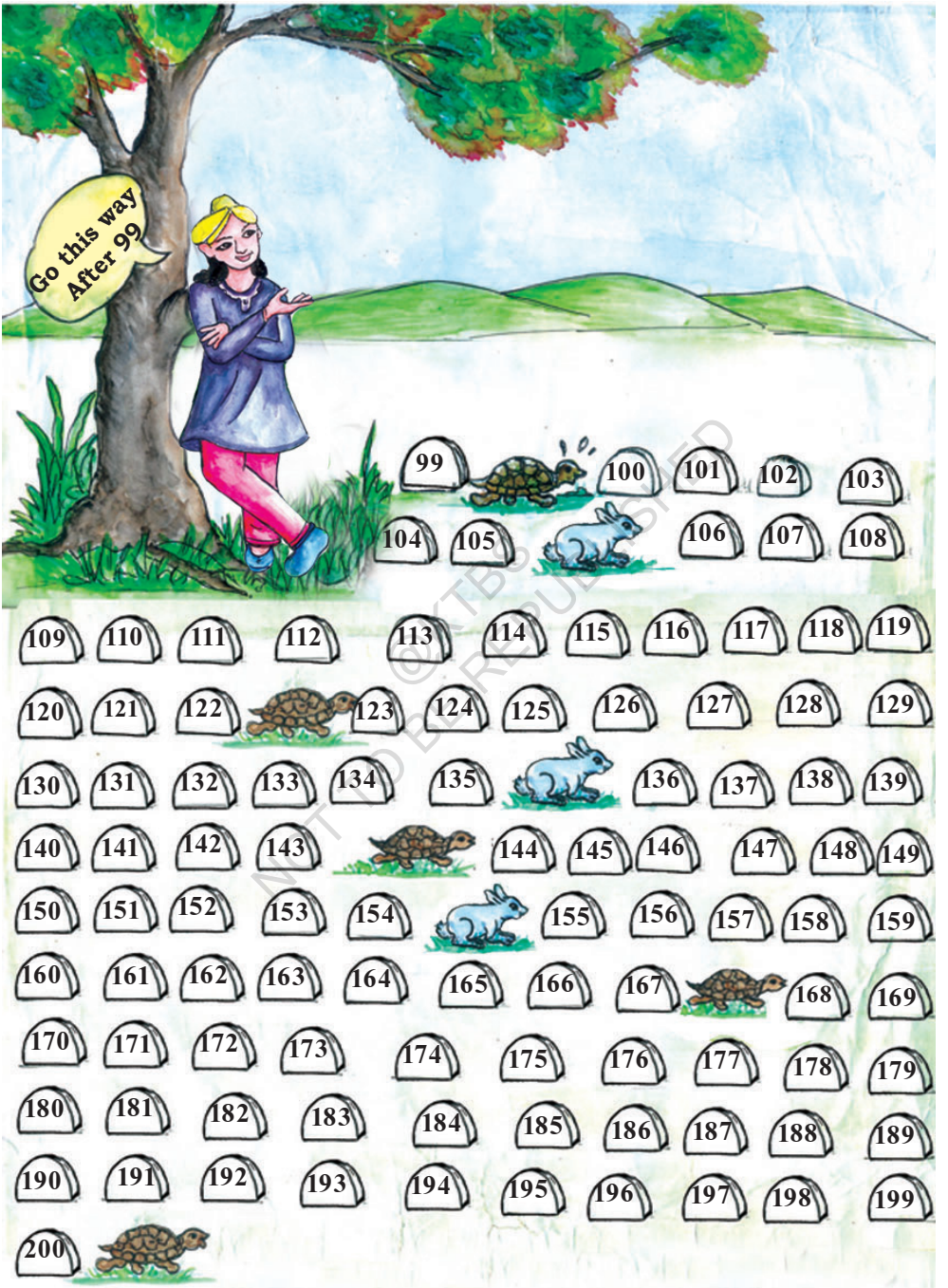
Rahul Dravid scored 94 + ..... = 100 runs.

Given below are the scores made by some cricket players who have missed centuries. Think and write in the column, the number of runs required to complete the century.

| Players | scored runs | runs needs to complete a century |
|---|---|---|
| Sachin Tendulkar | 92 | |
| Veerendra Sehwag | 95 | |
| Goutham Gambhir | 98 | |
| Suresh Raina | 88 | |

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# After 99




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- **Write from 200 to 299 in order in the following numerical table.**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 200 | 201 | 202 | | | | | 207 | | 209 |
| 210 | | | 213 | | | 216 | | | 219 |
| 220 | | | | | 225 | | | 228 | |
| | 231 | | | 234 | | | 237 | | |
| 240 | | | | | 245 | | | | 249 |
| | | | 253 | | | 256 | | 258 | |
| 260 | | 262 | | | | | | | 269 |
| | 271 | | | | | | 277 | | |
| | | 282 | | | | 286 | | | |
| | 291 | | | | | | | | 299 |

- **Write from 300 to 399 in order in the following numerical table.**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300 | 301 | | | | | | | | 309 |
| 310 | | | | | | | 317 | | 319 |
| | | | | | | | | 328 | |
| 330 | | | | | | 336 | | | 339 |
| 340 | | | | | 345 | | | | |
| | 351 | | | | | | | | |
| 360 | | | | | | | | | |
| | | 372 | | | | | | 378 | |
| 380 | | | | 384 | | | | | |
| 390 | | | | | | | | | 399 |

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- **Write from 400 to 499 in order in the following numerical table.**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 401 | 402 | | | | | | | |
| 410 | | | | 414 | | | | | |
| | | | | | | 426 | | | 429 |
| | | | | | | | | 438 | |
| | 441 | | | | | | | | |
| | | 452 | | | | | | | 459 |
| | | | 463 | | | | | | |
| 470 | | | | | 475 | | | | |
| | | | | | | 486 | | | 489 |
| | | | | | | | 497 | | |

- **Write from 500 to 599 in order in the following numerical table.**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 500 | | | | | | | | | |
| | | | | 514 | | | | | 519 |
| 520 | | | | | | 526 | | | |
| | 531 | | | | | | | | |
| | | | 543 | | | | | | |
| | | | | | | 556 | | | |
| | | | | | | | 567 | | |
| | | | | 574 | | | | 578 | |
| | | 582 | | | | 586 | | | |
| | 591 | | | | 595 | | | | |

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- **Write from 600 to 699 in order in the following numerical table.**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 600 | | | | | 605 | | | | |
| | | | | | | 616 | | | |
| | | | | 624 | | | | | |
| | | | | | | | 637 | | |
| | | | 643 | | | | | | |
| 650 | | | | | | | | 658 | |
| | | 662 | | | | | | | |
| | 671 | | | | | | | | 679 |
| | | | | 684 | | | | | |
| | | 692 | | | | | | | |

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- **Write from 700 to 799 in order in the following numerical table.**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 700 | | | | 704 | | | | 708 | |
| | 711 | | | | | | 717 | | |
| | | | | | | | | 728 | |
| | | 732 | | | | | | | 739 |
| | | | | | | | 747 | | |
| | | | 753 | | | | | | |
| 760 | | | | | | 766 | | | |
| | | | | 774 | | | | | |
| | | | | | | 786 | | | 789 |
| | | | | | 795 | | | | |

- **Write from 800 to 899 in order in the following numerical table.**

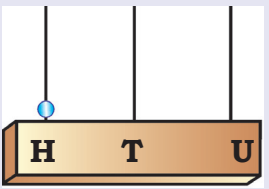
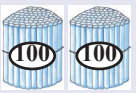
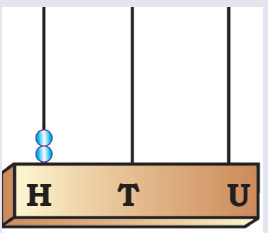
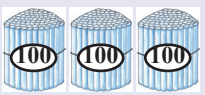
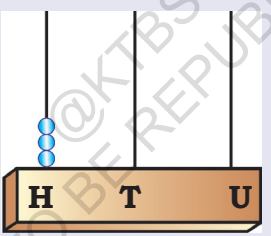
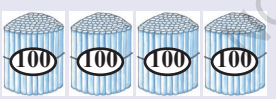
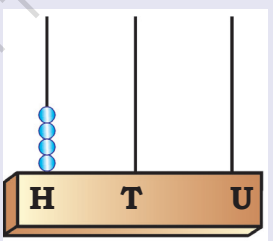
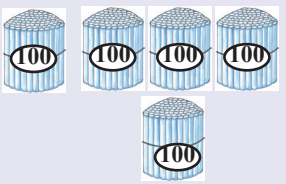
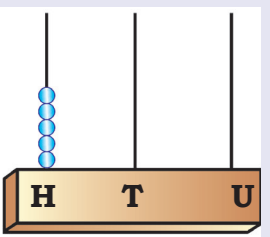
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 801 | | | 804 | | | | | |
| | | | 813 | | | | | | |
| 820 | | | | | | 826 | | | |
| | | | | | | | | | 839 |
| | 841 | | | | | | | | |
| | | | | | 855 | | | | |
| | | | | | | | 867 | | |
| | | 872 | | | | | | | |
| | | | | 884 | | | | | |
| 890 | | | | | | | | 898 | |

- **Write from 900 to 999 in order in the following numerical table.**

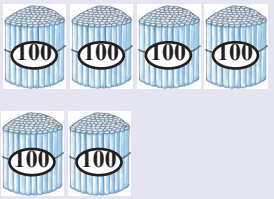
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 900 | | | | | | | | | |
| | 911 | | | | | | | | |
| | | 922 | | | | | | | |
| | | | 933 | | | | | | |
| | | | | 944 | | | | | |
| | | | | | 955 | | | | |
| | | | | | | 966 | | | |
| | | | | | | | 977 | | |
| | | | | | | | | 988 | |
| | | | | | | | | | 999 |

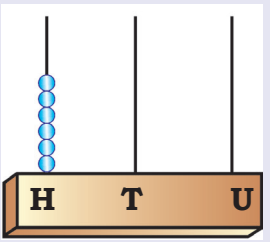
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## Observe this

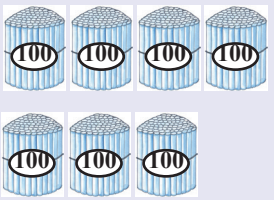
| Bundles of sticks | Abacus | Num-ber | Number in words |
|---|---|---|---|
|   |   | 100 | One hundred |
|   |   | 200 | Two hundred |
|   |   | 300 | Three hundred |
|   |   | 400 | Four hundred |
|   |   | 500 | Five hundred |

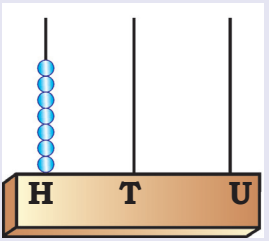
© KTBS NOT TO BE REPUBLISHED



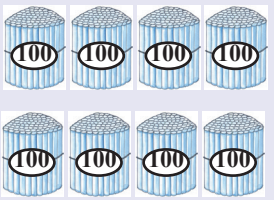



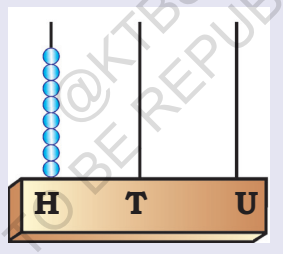

**600 Six hundred**



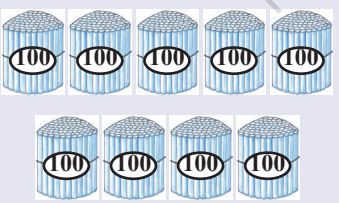



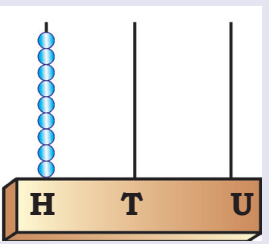

**700 Seven hundred**




**800 Eight hundred**




**900 Nine hundred**

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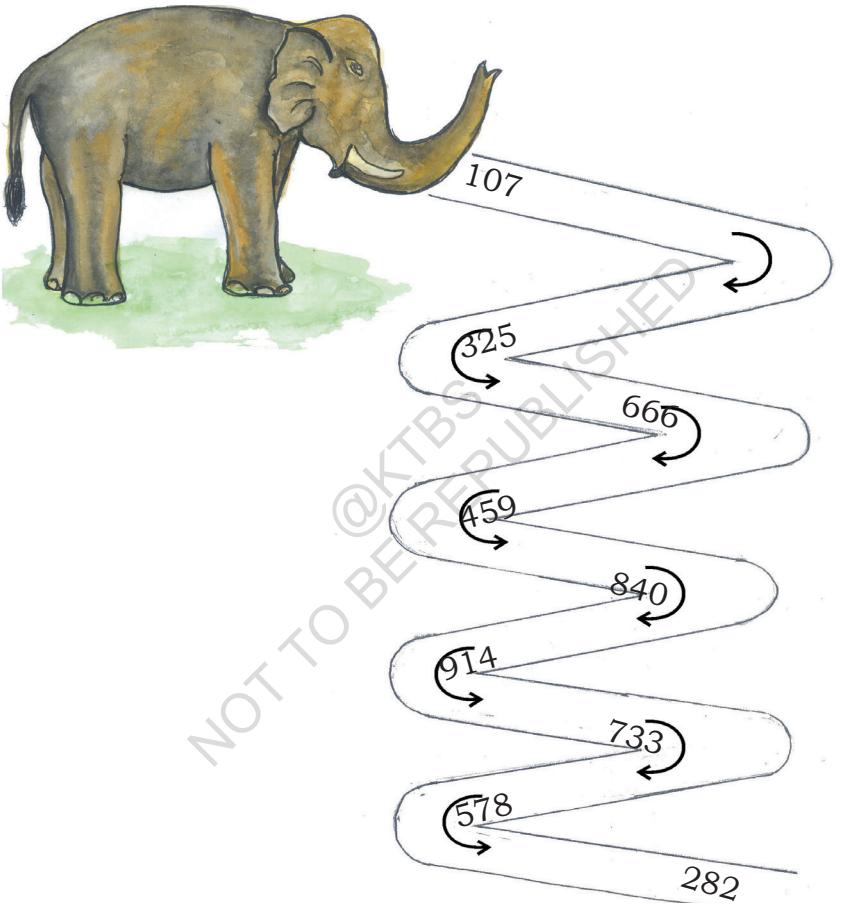
## Fill the missing number

| | |
|---|---|
| 100 | One hundred |
| 199 | One hundred ninety nine |
| 200 | Two hundred |
| 299 | - |
| - | Three hundred |
| 399 | - |
| 400 | - |
| | Four hundred ninety nine |
| | Five hundred |
| 599 | - |
| 600 | - |
| - | Six hundred ninety nine |
| - | Seven hundred |
| 799 | - |
| 800 | - |
| - | Eight hundred ninety nine |
| 900 | Nine hundred |
| 999 | - |
| 1000 | One thousand |

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## Help Me

An elephant has to go to the pond. Help the elephant to go to the pond by writing the numbers in words which are on the way.




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## Help

By writing the words in numbers, help the calf to find her mother.



275 Two hundred seventy five

– One hundred ninety nine

– Three hundred sixty two

– Five hundred forty six

– Eight hundred fifty three

– Nine hundred eighty one

– Six hundred four

– Seven hundred eighteen

– Four hundred twenty

– Nine hundred



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## Exercise 2.1

**I. Fill in the blanks with suitable numbers :**

a. 99, 100, ....., ....., ....., ....., ....., ....., ....., 108

b. 120, ...., ....., ....., ...., ...., ....., ....., ....., ...., 130

c. 271, 272, ...., ...., ...., ...., ....., ...., ...., ....., 281

d. 395, ....., ...., ...., ...., ....., 401, ....., ...., ...., 405

e. 589, ....., ....., ....., ....., ...., ...., ...., ....., .....,599

f. 697, 698, ....., ....., ....., ....., ....., ....., ....., 706

g. 755, ...., ....., ....., ...., ...., ....., ...., ....., .....,765

h. 896, ....., ....., ....., ....., ....., ....., ....., ....., 905

i 467, ..., ...., ...., ....., ...., ...., ...., ...., ..., ..., 478

j. 989, ....., ....., ....., ....., ...., ....., ....., .....,999

**II Read following numbers and write in words.**

**Example : 101 - One hundred one**

a. 213 - .....

b. 439 - .....

c. 528 - .....

d. 646 - .....

e. 957 - .....

f. 362 - .....

g. 774 - .....

h. 880 - .....

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## III. Write the numbers

**Example:** One hundred ninety six - 196

a. Three hundred forty eight -

b. Two hundred eighty three -

c. Five hundred seventeen -

d. Eight hundred thirty four -

e. Seven hundred twenty five-

f. Six hundred seventy nine -

g. Nine hundred five -

h. Four hundred fifty -

---

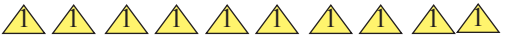
## Sum of Roses

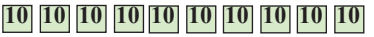
Vivek and Vimala's father have cultivated hundreds of rose plants in an acre of land. Thousands of flowers are grown. Vivek and Vimala wanted to count all those flowers.

As there are thousands of flowers, it is very difficult for them to count and remember. So they made a plan and prepared 3 types of cards as follows.



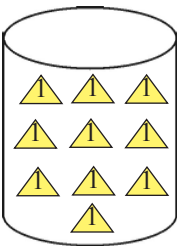
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Ten cards of 1 

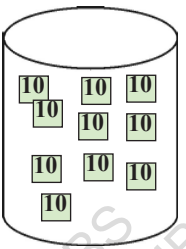
Ten cards of 10 

Ten cards of 100 

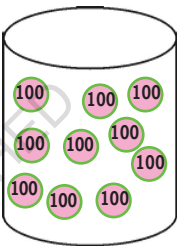
They took three boxes and kept the cards separately in each box as in the figure below.



**Box of 1**



**Box of 10**

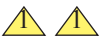


**Box of 100**

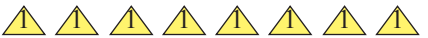
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Then Vivek and Vimala started counting flowers - as follows.

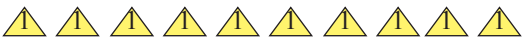
1 flower means 

2 flowers means 

 means _____ flowers

 means _____ flowers

After counting 10 cards of , Vivek took one card of  and kept in his right pocket.

 = 10

As there were more flowers, Vimala counted 10 flowers and Vivek took a card of ten 10 as follows

10 10 10 means 30 flowers

10 10 10 10 10 1 1 means 52 flowers

10 10 10 10 10 10 10 10 10 1 1 1 1 1 means ___flowers

Like this, after 10 cards of 10, Vivek took 1 card of 100
Now, 10 10 10 10 10 10 10 10 10 10 = 100

As Vimala counted, for every 100 flowers, Vivek collected cards of 100 as follows

100 100 means 200 flowers

100 100 100 10 10 means 320 flowers

100 100 100 100 10 10 10 1 1 means 432 flowers

100 100 100 100 100 means _____ flowers

100 100 100 100 100 100 100 10 10 1 means _____ flowers

Both of them continued, counting rose flowers.

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**Activity**

Roses counted by Vivek and Vimala

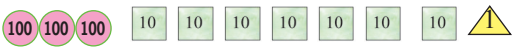
100 100 100 100 100 100 100 100 100

10 10 10 10 10 10 10 10 10

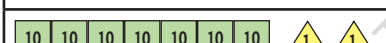
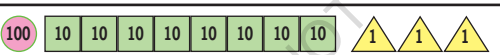
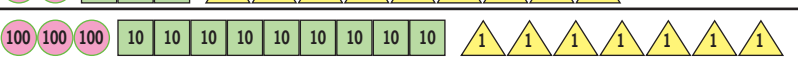
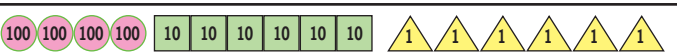
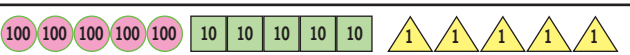
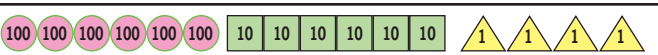
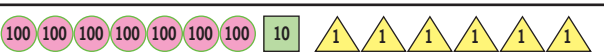
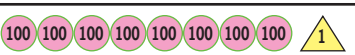
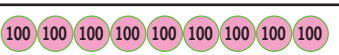
1 1 1 1 1 1 1 1 1

900
90
9

## 1. Write 100, 10, 1 cards according to the numbers of flowers in the following table

| No. of flowers | Cards 100 , 10 , 1 |
|---|---|
| 54 |  |
| 139 | |
| 262 | |
| 371 |  |
| 457 | |
| 506 | |
| 623 | |
| 710 |  |
| 800 | |
| 999 | |

## 2. Write the number of flowers according to cards.

| Cards 100 , 10 , 1 | No. of Flower |
|---|---|
|  | 72 |
|  | |
|  | |
|  | |
|  | 466 |
|  | |
|  | |
|  | |
|  | |
|  | |

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## A Shop of Dancing Queen Peacock



Once, a Peacock opened a vegetable shop for the forest animals and started the sale. But there was no retail selling.

Vegetables were arranged in ones, tens and hundreds.

A monkey came and purchased bananas and was very happy.

Now help other animals to purchase vegetables and make them happy.





| Bananas Purchased | Bunches of 100 | Bunches of 10 | Single Banana |
|---|---|---|---|
| 245 | 2 | 4 | 5 |



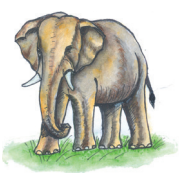


| Leaves to be Purchased | Bundles of 100 | Bundles of 10 | Single Leaf |
|---|---|---|---|
| 617 | | | |





| Carrots to be Purchased | Bundles of 100 | Bundles of 10 | Single Carrot |
|---|---|---|---|
| 380 | | | |





| Sugar cane to be Purchased | Bundles of 100 | Bundles of 10 | Single Sugarcane |
|---|---|---|---|
| 900 | | | |





| Mangoes to be Purchased | Bassket of 1000 | Bassket of 10 | Single Mango |
|---|---|---|---|
| 109 | | | |

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Peacock receives money only in 100 rupee notes, 10 rupee notes and coins of ₹1 .

How many notes and coins to be given by animals to peacock? How many rupees and notes do they pay ?

| **Animals** | **Money to be given** | 100 | 10 | 1 |
|---|---|---|---|---|
| | |  |  |  |
|  | ₹ 185 | 1 | 8 | 5 |
|  | ₹ 308 | | | |
|  | ₹ 190 | | | |
|  | ₹ 450 | | | |
|  | ₹ 55 | | | |

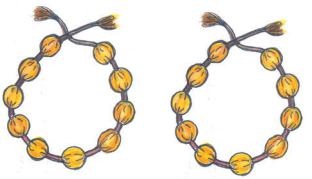
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# Count and Write

## Model :



Necklace of 100 beads 1



Necklace of 10 beads 2



Single beads 7

**Total** 127 **beads**

---



₹ 100 notes ....., 



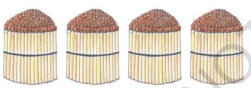
₹10 notes ....., 



₹ 5 coins .....

**Total** ☐ **Match sticks**

---



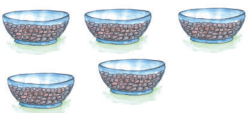
Bundles of 100 match sticks .....



Bundles of 10 match sticks .....



single match sticks



Vessel containing 100 seeds .....



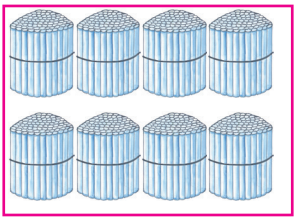
Vessel containing 10 seeds .....

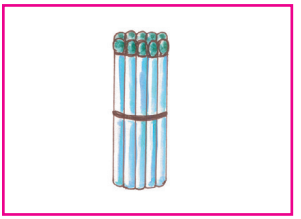


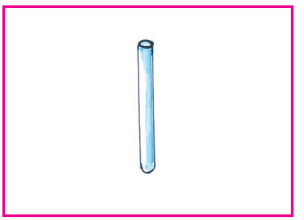
Single seeds

**Total** ☐ **seeds**

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Bundles of 100 straws .....

Bundles of 10 straws .....

single straws .....

**Total** ☐ **Straws**

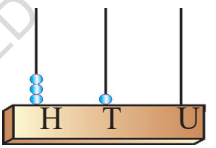
**Observe, understand and write numbers and complete the abacus.**

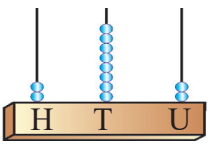
| | | |
|---|---|---|
| 3 Hundreds | 1 tens | 0 units |
| 2 Hundreds | 8 tens | 2 units |
| 4 Hundreds | 4 tens | 4 units |
| 1 Hundreds | 6 tens | 8 units |
| 7 Hundreds | 5 tens | 3 units |

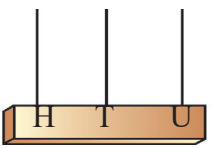
310

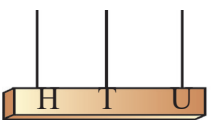
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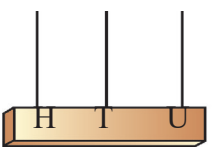
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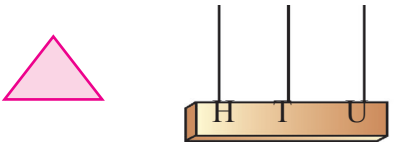



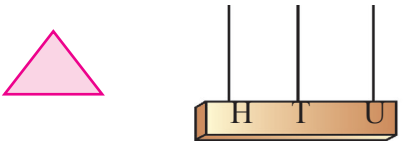




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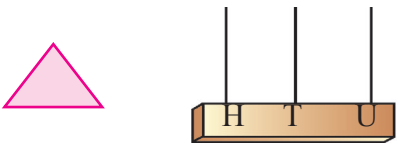
| | | |
|---|---|---|
| 6 Hundreds | 2 tens | 5 units |




| | | |
|---|---|---|
| 8 Hundreds | 0 ten | 1 unit |




| | | |
|---|---|---|
| 9 Hundreds | 9 tens | 9 units |




## Colour the numbers

| | | | | |
|---|---|---|---|---|
| 106 | 701 | 508 | 441 | 751 |
| 291 | 600 | 862 | 333 | 185 |
| 998 | 150 | 212 | 699 | 265 |
| 583 | 844 | 797 | 920 | 422 |
| 359 | 966 | 378 | 626 | 480 |

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**Find the numbers which are given below in the above table and colour them as indicated**

| Orange | Blue | Green |
|---|---|---|
| Two hundred and twelve | 700 + 50 + 1 | Three hundred and seventy eight |
| Six hundred | Eight hundred and forty four | 400+20+2 |
| One hundred and six | 300 + 30 + 3 | Six hundred and ninety nine |
| 900 + 20 | Four hundred and eighty | Two hundred and ninety one |
| 900 + 60 +6 | One hundred and fifty | 500 +8 |

| Pink | Yellow |
|---|---|
| Four hundred and forty one | Two hundred and sixty five |
| 900+90+8 | 700 + 1 |
| 100+80+5 | Seven hundred and ninety Seven |
| Six hundred and twenty six | 300+50+9 |
| Nine hundred and eighty three | Eight hundred and sixty two |

## Identify its friends, match by drawing lines.

| | | |
|---|---|---|
| **Model**  | My friends value is more than 100, less than 200 |   |
|  | Three notes of ₹100 each |   |
|  | My friend is 4 steps behind 100 |   |
|  | My friend is between 269 and 289 |   |
|  | My friend is very near to 100 |   |
|  | My friend is very near to one thousand |   |

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# Exercise 2.2

## 1.Write the given numbers in the place value table:

| | | Hundred | Ten | Unit |
|---|---|---|---|---|
| a. | 186 | | | |
| b. | 420 | | | |
| c. | 613 | | | |
| d. | 241 | | | |
| e. | 768 | | | |

| | | Hundred | Ten | Unit |
|---|---|---|---|---|
| f. | 375 | | | |
| g. | 904 | | | |
| h. | 832 | | | |
| i. | 557 | | | |
| j. | 600 | | | |

## 2. Write the number given in the table.

a.

| Hundred | Ten | Unit |
|---|---|---|
| 3 | 2 | 0 |

b.

| Hundred | Ten | Unit |
|---|---|---|
| 1 | 1 | 1 |

c.

| Hundred | Ten | Unit |
|---|---|---|
| 5 | 3 | 4 |

d.

| Hundred | Ten | Unit |
|---|---|---|
| 4 | 5 | 5 |

e.

| Hundred | Ten | Unit |
|---|---|---|
| 6 | 4 | 6 |

f.

| Hundred | Ten | Unit |
|---|---|---|
| 7 | 9 | 2 |

g.

| Hundred | Ten | Unit |
|---|---|---|
| 8 | 0 | 3 |

h.

| Hundred | Ten | Unit |
|---|---|---|
| 2 | 6 | 7 |

i.

| Hundred | Ten | Unit |
|---|---|---|
| 9 | 7 | 8 |

J.

| Hundred | Ten | Unit |
|---|---|---|
| 3 | 0 | 0 |

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## 3. Write the numbers given in place value table, in words.

**Example:**

| Hundred | Ten | Unit |
|---|---|---|
| 2 | 6 | 4 |

**Two hundred sixty four**

1.

| Hundred | Ten | Unit |
|---|---|---|
| 4 | 2 | 8 |

2.

| Hundred | Ten | Unit |
|---|---|---|
| 6 | 5 | 7 |

3.

| Hundred | Ten | Unit |
|---|---|---|
| 5 | 4 | 6 |

4.

| Hundred | Ten | Unit |
|---|---|---|
| 7 | 8 | 0 |

5.

| Hundred | Ten | Unit |
|---|---|---|
| 9 | 7 | 5 |

6.

| Hundred | Ten | Unit |
|---|---|---|
| 3 | 1 | 9 |

7.

| Hundred | Ten | Unit |
|---|---|---|
| 8 | 9 | 1 |

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## 4.Write the numbers given in words in the place value table.

**Example :** Eight hundred twenty one.

| Hundred | Ten | Unit |
|---|---|---|
| 8 | 2 | 1 |

1. Four hundred seven

| Hundred | Ten | Unit |
|---|---|---|
| | | |

2. One hundred eighty eight

| Hundred | Ten | Unit |
|---|---|---|
| | | |

3. Five hundred thirty five

| Hundred | Ten | Unit |
|---|---|---|
| | | |

4. Seven hundred fifty three

| Hundred | Ten | Unit |
|---|---|---|
| | | |

5. Six hundred sixty

| Hundred | Ten | Unit |
|---|---|---|
| | | |

6. Two hundred twenty

| Hundred | Ten | Unit |
|---|---|---|
| | | |

7. Three hundred forty four

| Hundred | Ten | Unit |
|---|---|---|
| | | |

8. Nine hundred ninety nine

| Hundred | Ten | Unit |
|---|---|---|
| | | |

9. seven hundred

| Hundred | Ten | Unit |
|---|---|---|
| | | |

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# Jump and Learn



Puttu, Mary and Janu play with their pet animals and birds during leisure time at home. These pet animals give instructions to them to jump in different ways. You also jump and learn with them.

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Jump one step at a time in the forward direction.



104, 105, 106, 107, 108, 109, 110, 111

Jump one step at a time in the backward direction.

179, 180, 181, 182, 183, 184, 185,



Jump two steps at a time in forward direction.



390, 392, 394, ___, ___, 400, ___

Jump two steps at a time in backward direction.



286, ___, ___, ___, 294, 296, 298, 300



Jump 5 steps forward, at a time.





700, 705, 710, ___, ___, ___, ___, 735

Jump 5 steps backward, at a time.



___, ___, ___, ___, ___, 615, 620, 625



Jump 10 steps forward, at a time





470, 480, ___, ___, ___, ___, ___, 540

Jump 10 steps backward, at a time



470, 480, ___, ___, ___, ___, ___, 540



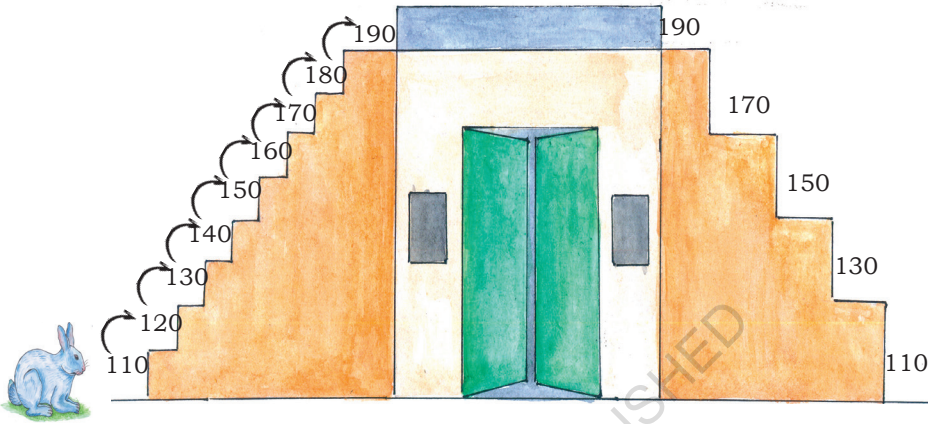
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**Fill in with the missed numbers:**

1. 300, 310, ___, ___, ___, ___, 360, ___
2. 400, 450, ___, ___, ___, ___, ___, 750
3. 800, 798, 796, ___, ___, ___, ___, 786
4. 201, 203, ___, ___, 209, ___, ___, 215
5. 999, 899, ___, ___, ___, ___, ___, 299
6. 675, 680, ___, ___, ___, ___, ___, 710

# Think

**1. By reading numbers on the steps, show an arrow mark how rabbit Chintu climbs up and climbs down the roof.**

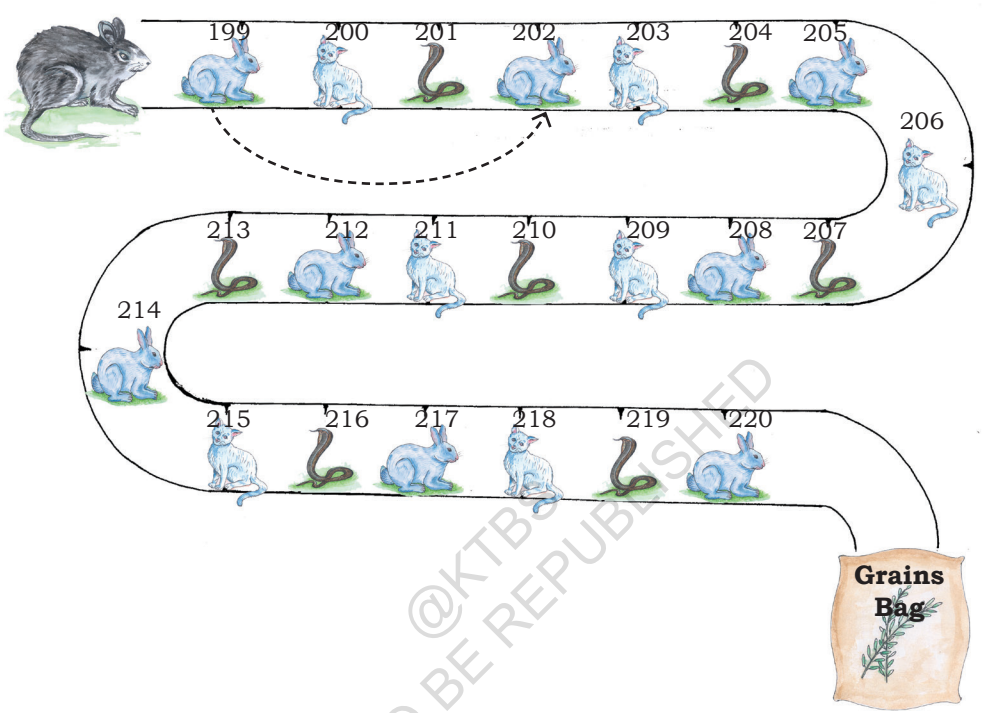



**2. Sampat and Nidhi want to meet their friends on the other side of the river. How do they jump from the 200th rock to 600th rock to go to the other side of the river ?**
**(Hint: An increase of 50 steps on each rock)**



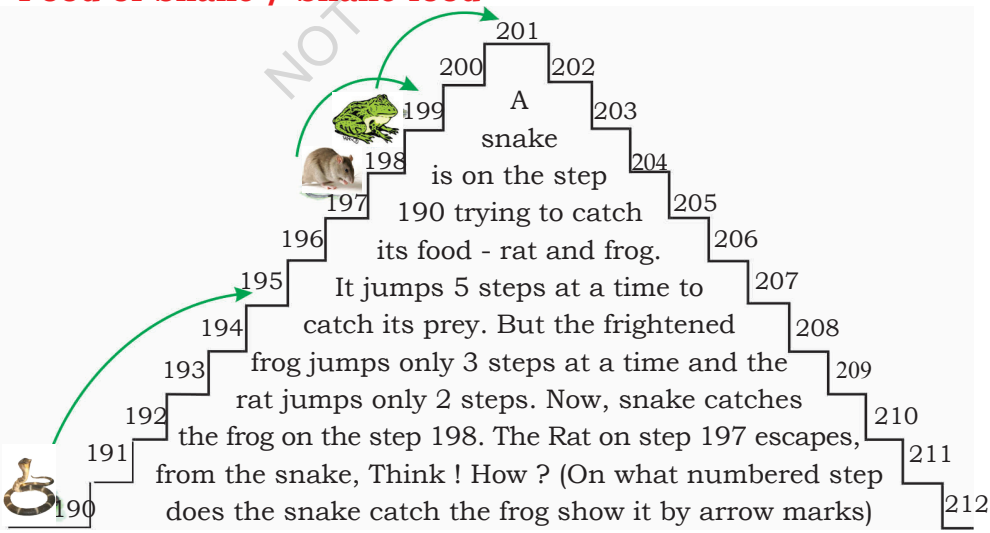

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## 3. A rat wants to eat the cereals in the bag. But its enemies like snakes and cats are on its way. But still it reaches the bag and eats cereals ! How ?




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### Food of Snake / Snake food



## Exercise 2.3

**I. Write the number which comes after.**

a. 99, ___
b. 200, ___
c. 350, ___
d. 409, ___
e. 175, ___
f. 630, ___
g. 899, ___
h. 998, ___
i. 799, ___
j. 529, ___

**II. Write the number which comes before.**

a. ___, 101
b. ___, 300
c. ___, 210
d. ___, 490
e. ___, 500
f. ___, 650
g. ___, 811
h. ___, 777
i. ___, 900
j. ___, 700

**III. Write the number which comes between.**

a. 99, ___, 101
b. 724, ___, 726
c. 309, ___, 311
d. 189, ___, 191
e. 276, ___, 278
f. 400, ___, 402
g. 699, ___, 701
h. 898, ___, 900
i. 549, ___, 551
j. 998, ___, 1000

**IV. Fill in the blanks as given in the model.**

**Model : 100, 105, 110, 115, 120, 125, 130, 135**

a. 296, 298, ___, ___, ___, 306, ___, 310

b. 400, ___, 420, 430, ___, ___, 460, ___, 480

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c. 801, ___, ___, 804, 805, ___, ___, 808

d. 900, 903, ___, ___, ___, ___, ___, 921

e. 640, 660, ___, ___, ___, ___, ___, 780

## V. Fill in the blanks by following the example

**Example :** 200, 198, 196, 194, 192, 190, 188, 186

a. 300, 295, ___, ___, ___, ___, ___, 265

b. 500, 450, 400, ___, ___, ___, ___, 150

c. 800, 790, ___, ___, ___, ___, ___, 730

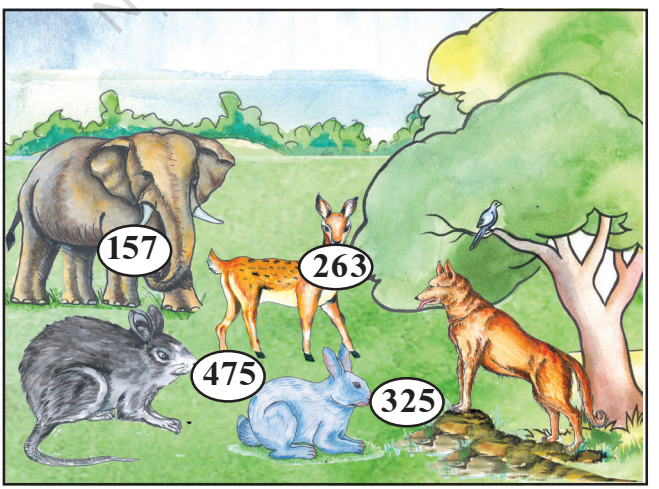
d. 990, 970, 950, ___, ___, ___, ___, 850

e. 790, 789, ___, ___, ___, ___, ___, 783

## Biggest number

### Which animal has the biggest number ?

There was an arguments between an elephant and a deer stating which one of the two has the greatest number. At the same time, there came a rabbit and told I have bigger number than you both have. At the same time, there came a rat running and told my number is bigger. The number you have is small. You can ask the clever fox if you want.




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The elephant, deer and rabbit agreed with the rat. All the four animals went to fox and told about the problem. The fox listened to their problem, and decided that elephant had the smallest number and rat had the biggest number.

Do you agree with the judgement given by fox. Then think and answer the following :

1. Number on the elephant is ___, number on the deer is_____ ,biggest number is ____
2. Number on the deer is ____, number on the rabbit ____ smallest number is ____
3. The number on the rabbit is____, the number on the rat ____ biggest number is ____
4. The biggest number between deer and rat is ____
5. The smallest number between elephant and rabbit is ____
6. The biggest number among elephant, deer, rabbit is ____
7. The smallest number among elephant, deer, rabbit is ____
8. Biggest number among elephant, rat, rabbit is ____

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**Observe and understand**

Are you able to answer the above questions ? If not, learn how to identify the small and the big numbers with the following example.

**1.Write the numbers written on the elephant, the deer, the rabbit and the rat in the place value table:**

| | Hundred | Ten | Unit |
|---|---|---|---|
| Rabbit | 3 | 2 | 5 |
| Rat | 4 | 7 | 5 |
| Elephant | 1 | 5 | 7 |
| Deer | 2 | 6 | 3 |

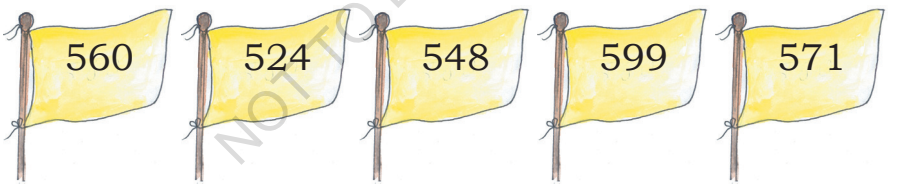
**Compare hundreds**

Among 3, 4, 1, 2 the biggest digit is - 4
the smallest digit is - 1

Therefore, among 325, 475, 157, 263
the greatest number is - 475
the smallest number is - 157

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**2. Observe the numbers written on 'flags' below.**




**Write the numbers in the place value table.**

| Hundred | Ten | Unit |
|---|---|---|
| 5 | 6 | 0 |
| 5 | 2 | 4 |
| 5 | 4 | 8 |
| 5 | 9 | 9 |
| 5 | 7 | 1 |

Numbers in place value 'hundred' are same. Therefore compare among 6, 2, 4, 9, 7 in tens place. Among these the biggest digit is - 9
the smallest digit is-2

So, among 560, 524, 548, 599, 571
the greatest number is 599
the smallest number is 524

**3. Observe the numbers written on the leaves.**




Write the numbers in the place value table

| Hundred | Ten | Unit |
|---|---|---|
| 8 | 6 | 7 |
| 8 | 6 | 1 |
| 8 | 6 | 4 |
| 8 | 6 | 5 |
| 8 | 6 | 3 |

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Here, the numbers in the place value 'hundred' are equal to each other. Number in place value 'ten' are also equal. Therefore compare the units.

Among 7, 1, 4, 5, 3 the biggest digit is - 7, the smallest digit is - 1

Therefore, among 867, 861, 864, 865, 863,

the greatest number is 867
the smallest number is 861

## Who gets more ? Who gets less ?

We are 10th standard students. We have our marks scored in the public examination. Think and tell, who has scored more marks and who has scored less marks ?




1. The highest marks _____
2. The lowest marks _____
3. Equal marks scored by two _____
4. The highest marks among boys _____
5. The highest marks among girls _____
6. The lowest marks among boys _____
7. The lowest marks among girls _____
8. Four marks less than 400 _____
9. Ten marks more than 500 _____
10. Ten marks less them 500 _____

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### Observe

While comparing 3-digit numbers, first compare the digits in the hundredth place. Whichever number has more hundreds is the greater number. If the digits in the hundreds place are same, then compare the digits in the ten's place, if the digits in the ten place is same, then compare the digits in the units place and identify the bigger and the smaller numbers.

## 2.5 Ascending and descending order

In the previous class you have learnt, how to write single digit and 2-digit numbers in the ascending and desending order. Now you learn how to write 3-digit numbers in the ascending and the descending order.

### Learn by doing

Take some paper slips and write numbers upto 999, fold them and put in a box.

Now pick up 6 slips

You have got these numbers - 225, 352, 561, 833, 417, 799. First write the digit in the hundreds place value 2,3,5,8,7. Then arrange in ascending order - 2, 3, 4, 5, 7, 8.

Now in the same way write the numbers 225, 352, 561, 833, 417, 799

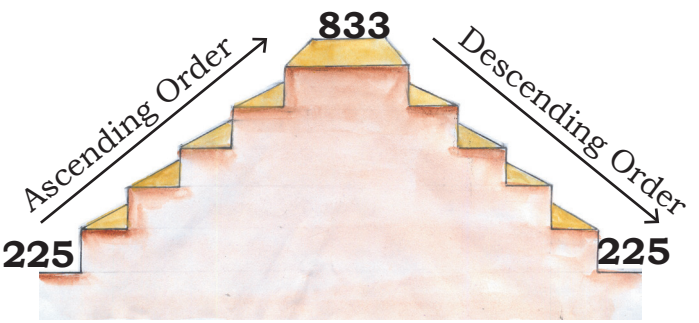
in the ascending order-225,352,417, 561,799,833.

When the given numbers are to be written in the ascending order, start from the smaller number to the greater number.

Write same numbers in the descending order 833, 799, 561, 417, 352, 225

When the given numbers are to be written in the descending order, start from the greatest number to the smallest number. Now you understand by writing the numbers on steps which you have written in the ascending and the descending order.

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## Try yourself :

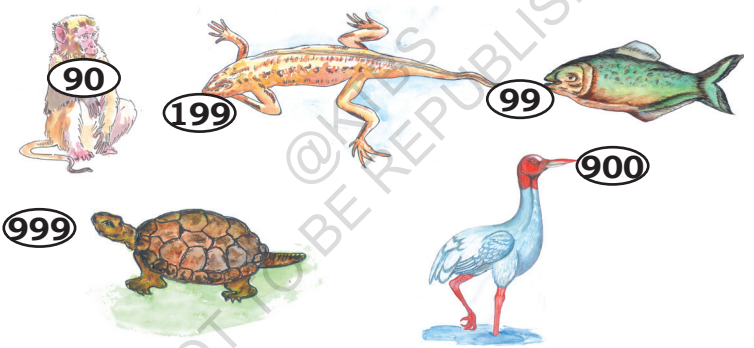
Let your friend pick six slips from the box. If he gets 472, 477, 478, 475, 476, 473, observe the digits in the hundreds place. All are the same. Then observe the tens place. They are also same. Therefore write the digits in the unit place, in the descending order 2, 7, 8, 5, 6, 3.

The descending order 8, ___, ___,___,___,___

In the same way write 472, 477, 478, 475, 476, 473,in the descending order - 478, ___, ___,___,___,___

Write in the ascending order -472, ___, ___,___,___,___

## Do and enjoy




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Some numbers are written on the pictures of the above animals. Compare these numbers on animals and fill in the blanks given below :-

**Write in the ascending order**

| | | | | |
|---|---|---|---|---|
| | | | | |

**Write the names of animals in the ascending order of numbers.**

| | | | | |
|---|---|---|---|---|
| | → | | → | | → | | → | |

## Exercise 2.4

**I. Identify the greater and smaller numbers in each pair and write.**

| | | Big number | Small number |
|---|---|---|---|
| **Example :** | 101, 110 | 110 | 101 |
| 1. | 125, 521 | | |
| 2. | 999, 909 | | |
| 3. | 772, 774 | | |
| 4. | 501, 105 | | |
| 5. | 842, 824 | | |

**II. Underline the greatest number :**

**Example : 211, 112, <u>221</u>, 121, 111**

1. 811, 801, 810, 809, 812
2. 336, 346, 386, 316, 376
3. 666, 660, 665, 663, 667
4. 740, 770, 780, 710, 720
5. 901, 910, 920, 903, 903

**III. Underline the smallest number :-**

**Example -** 327, 273, 372, 732, <u>237</u>

1. 416, 406, 426, 462, 460
2. 700, 500, 200, 300, 400
3. 183, 187, 181, 190, 189

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4. 572, 576, 571, 575, 574

5. 236, 216, 246, 276, 256

## IV. Write in the ascending and the descending order.

**Example :** 567, 467, 967, 767, 267
Ascending order : 267, 467, 567, 767, 967
Descending order : 967, 767, 567, 467, 267

1. 477, 873, 783, 580, 986
Ascending order :
Descending order :

2. 888, 808, 880, 80, 88
Ascending order :
Descending order :

3. 415, 428, 409, 472, 447
Ascending order :
Descending order :

4. 645, 642, 649, 647, 644
Descending order :
Ascending order :

5. 501, 301, 101, 601, 201
Descending order :
Ascending order :

6. 701, 770, 707, 77, 777
Descending order :
Ascending order :

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# Framing numbers

Take10 cards of equal size and prepare a place value table on the floor or write on a paper as shown and put them in a box.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|

| Hundred | Ten | Unit |
|---|---|---|
| | | |

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**Activity 1 :**

Now pick any three cards from the box. For example, the three cards picked by you are 3 1 7 first, identify the biggest digit.

Among 3 1 7 biggest digit is 7.

Then, the identify the smallest digit.

Among 3 1 7 the smallest digit is 1.

Now write the greatest digit in hundreds place, the smallest number in the units place and remaining number in tens place.

| Hundred | Ten | Unit |
|---|---|---|
| 7 | 3 | 1 |

= **731**

Now read - Seven hundred and thirty one.

Write 731 in your note book.

Then remove the cards and keep the smallest numbered card in the hundreds place, the highest numbered card in units place, remaining card in tens place.

| Hundred | Ten | Unit |
|---|---|---|
| 1 | 3 | 7 |

- **137**

Now read - One hundred and thirty seven.

Write 137 in your note book.

Compare the numbers written in the table.

Between 731, 137 the greatest number is 731.

The smallest number is 137.

Therefore, the biggest number formed by using 3, 1, 7 is 731. The smaller number formed by 3, 1, 7 is 137.

**Activity 2 :**

Take out 3 cards from the box.

For example, the cards taken by you are - 4 9 0 Arrange these numbers in various types in place value table, read, then write them in your notebook.

| Hundred | Ten | Unit | |
|---|---|---|---|
| 4 | 9 | 0 | - Four hundred ninety. |
| 4 | 0 | 9 | - Four hundred nine. |
| 9 | 4 | 0 | - Nine hundred forty. |
| 9 | 0 | 4 | - Nine hundred four. |
| 0 | 4 | 9 | - Forty nine. |
| 0 | 9 | 4 | - Ninety four. |

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Read and compare these numbers.

490, 409, 940, 904, 049, 094.

First, write the biggest number in the hundreds place.

9$\underline{4}$0 and 9$\underline{0}$4

Identity digits in the tens place and underline them.

Between 4 and 0, big digit is 4.

Therefore the biggest number between

940 and 904 is 940

Now write the smallest number in the hundreds place.

0$\underline{4}$9 and 0$\underline{9}$4

Identify the numbers in Tens place.

Between 4 and 9, small digit is 4.

The greatest number formed by using 0, 4, 9, is 940

The smallest number formed by using 0,4,9 is 049

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## Exercise 2-5

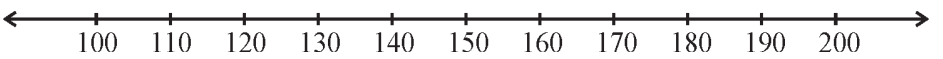
**I. Frame the greatest and the smallest numbers using the digits given below :**

**Example :**

| | | Greatest Number | Smallest Number |
|---|---|---|---|
| | 2, 7, 0 | 720 | 027 |
| A | 9, 1, 5 | | |
| B | 6, 3, 7 | | |
| C | 1, 8, 4 | | |
| D | 5,6, 0 | | |
| E | 7, 8, 9 | | |

## 2.7 Number Line

**Observe the number line and answer :**




1. Number between 140 and 160 is _____.
2. 180 is between _____ and _____.
3. Number after 120 is _____.
4. Number before 150 is _____.
5. Number on the right side of 160 is _____.
6. Number on the left side of 110 is _____.
7. 140 is on _____ side of 170 (right / left).
8. 190 is on _____ side of 150 (right / left).

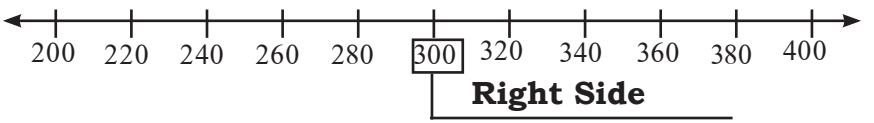
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**Observe**

- **Number line is a straight line.**
- **Numbers are written in an order at equal distance on the number line**

" The value of number increases on number line, as we move towards right side from any point.

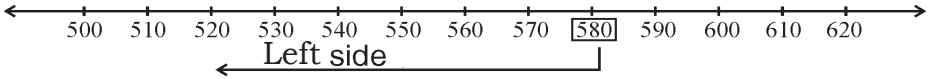
Understand through an example :-




As shown by the arrow mark, the value keeps on increasing from right side of number 300, on number line.

The value of number decreases on number line, as we move towards left from any number.

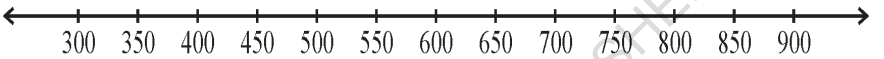
Observe and Learn by an example given below.




As shown by the arrow mark, the value keeps on decreasing from left side of number 580 on the number line.

**Try your self:**

Answer the following by observing the number line



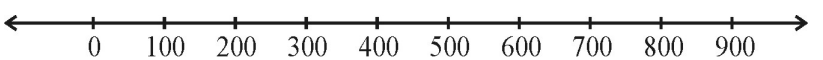

1. The number between 550 and 650.
2. 450 is between _____ and _____.
3. The number after 650 is _____.
4. The number before 400 is _____.
5. 700 is towards the _____ of 450 (Right / left).
6. 500 is towards the _____ of 850 (Left / right).

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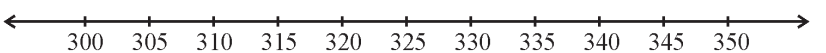
## Exercise 2.6

**1. Mark the following numbers on the number line by underlining the number.**

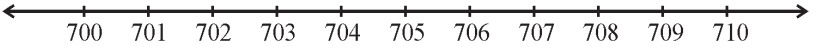
a. 600



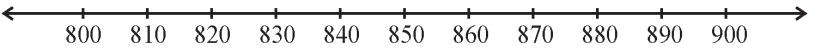

b. 315



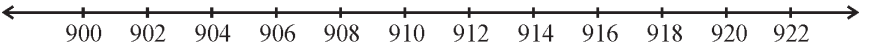
c. 702



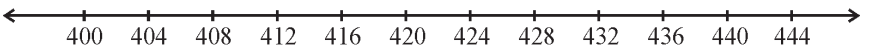

d. 890




e. 910




## 2. Observe the following number line and answer




a. The number on the left side of 428 is _____.

b. The number on the right side of 416 is _____.

c. The number between 428 and 436 is _____.

d. 404 is between _____ and _____ numbers.

e. 412 is to the _____ side of 428.

f. The bigger of 416 and 436 is _____.

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Chapter 3

# ADDITION

R1B8K6

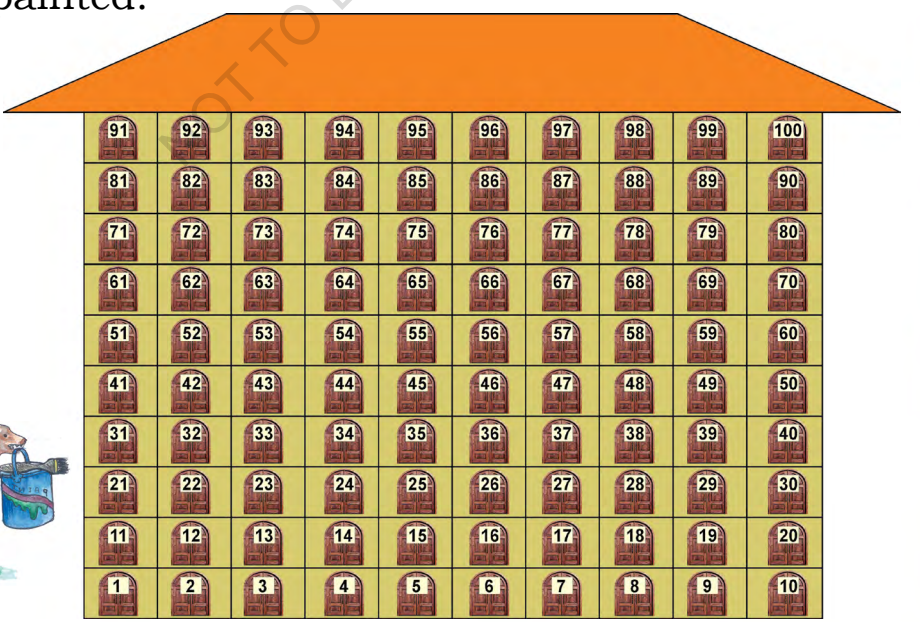
**After studying this chapter you can**

- solve addition problems expressed in different situations presented through pictures and stories,
- use place value in standard algorithm of addition,
- Add three digit numbers without borrowing and with borrowing
- solve problems on addition shown through diagrams and stories for various situations.
- construct/frame additon problems,
- estimate the sum of 2 given numbers not exceeding 99.

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## Game of addition

Hai ! I am Pinki. This is my landlord's house. It is so big, you know. It has 100 rooms. Some rooms have to be painted.



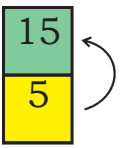



Room number 5 is painted, next fifteenth (15) room should be painted. There are 2 ways to reach room Number 15.

1. After room number. 5, reach room number 15 by passing through one room after the other. For example 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 (5+10=15)

2. Jump once from 5th room. So that I have moved 10 rooms forward, and reached 15th room.

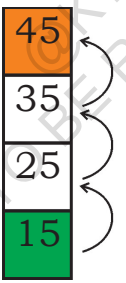
5+10=15




**Think :**

- To go to room 45 from room 15, I have to jump up _____ times.

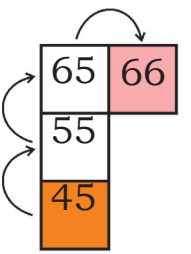
15+☐ = 45




- In the same way, to go to room 66 from room 45, jump 2 times, then move towards right side and reach 66.

45+20= 65

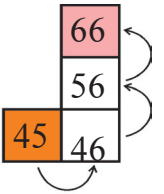
65+ 1= 66




I can go in another way .....

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From room no 45 move to 46th room and then jump twice from their reach 66th room.




How many rooms are crossed when we are going from room 45 to room 66? Think.

**Now you try ; get the answer, colour that room.**

1. 66 + 10 = _____
2. 73 + 25 = _____
3. Add 9 and 29 = _____
4. Add 15 and 13= _____
5. Add 30 and 20 = _____

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**Add easily :**

**Example1.**

Nithesh and Nirmala went to a fruits shop along with their mother.

**Nithesh :** Mother, I like pomegranate

**Nirmala :** Mother, I like watermelon



Mother bought pomeg ranate for ₹ 49, water melon for ₹42. The Shop keeper told immediately the amount to be paid to him.

49 means 40 and 9

42 means 40 and 2

Therefore if we add 49 and ₹42 the sum is ₹ 91.

## Now, let us try.

43 + 35
= 40 + 3 + 30+5
= 40 + 30 + 3 + 5
= 70 + 8
= **78**



Nitesh

It is very easy
40+30=70
3+5= 8
Total= 78

Separate 43 and 35 into tens and units



Nirmala

## Example 2. It can be done in another way also.

23 + 64
= 20 + 3 + 60 + 4
= 80 + 3 + 4
= 80 + 7
= **87**



## Try yourself.

61+ 16 = 60 + ☐ + 10 + ☐

= ☐ + ☐ + ☐

= ☐ + ☐

= ☐

43 + 34 = ☐ + ☐ + ☐ + ☐

= ☐ + ☐ + ☐

☐ ☐

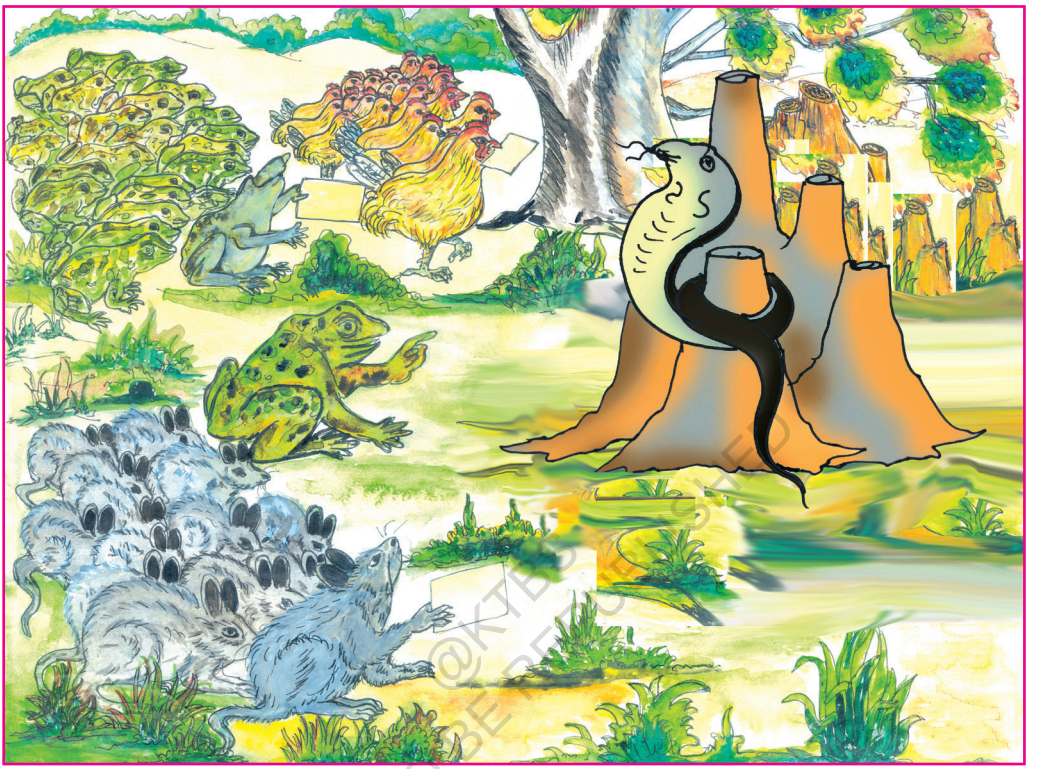
= ☐ + ☐

= ☐

**Think :** Is it possible to add 3-digit numbers?

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# Listen to a story



Once upon a time a snake had arranged a party to all the animals to whom it was giving trouble. It invited all the families of rats, frogs and hens.

When the animals came to know the decision of the snake, they did not believe as many were troubled by him, so they together refused the snake's invitation.

The snake was disappointed

"It requested all the animals again and again and said while coming, count your numbers, while going back count your numbers again. I do not trouble you any more. I am telling you the truth believe me, please fulfill my ambition".

All of them agreed with the words of the snake. A big green frog took responsibility to take all the rats, frogs and hens. It also promised to bring 200 members back.

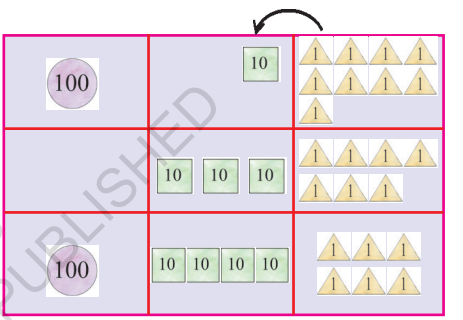
Before going to snake, the big green frog counted the members.

After coming back it again counted them.

Rats-46, hens-37, frogs-109

Now let us see the number of frogs and hens who came back from snake's house.

| | 100 | 10 | 1 |
|---|---|---|---|
| Number of frogs: | 1 | 0 | 9 |
| Number of hens. | | 3 | 7 |
| **Total:** | 1 | 4 | 6 |




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**Note :** 1 Indicates - units group.
10 Indicates - tens group.
100 Indicates - hundreds group.

**Step 1.**

Add all units - 1 Make it a group of ten. Draw line using colour pencil. Add it to group. 10 Write the answer remaining in unit place.

**Step 2.**

Add the group of 10 and write in tens place.

**Step 3.**

Add in group 100 and write in hundreds place.

Write them in number form :

Units group - 6

Tens group - 4

Hundreds group - 1

Therefore total number of frogs and hens = 146

Now. add to the total of frogs and hens to number of rats.

| | 100 | 10 | 1 | | | |
|---|---|---|---|---|---|---|
| Number of frogs and hens | 1 | 4 | 6 | | | |
| Number of rats | | 4 | 6 | | | |
| **Total :** | | | | | | |

**Think :** Green frog has told the snake, that they were 200 members coming to its house. Are they 200 now? what has happened?

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## How many bunches of bananas?

A farmer has grown 264 bunches of banana in the plantation last year and this year 123 bunches of banana. What is the total number of bunches of bananas grown by the farmer?

Bunches of banana grown last year 264

Bunches of banana grown this year 123

**Estimate**

The sum of 264 and123, is it more than 400 or less?

Find the answer.

| | 100 | 10 | 1 |
|---|---|---|---|
| Bunches of bananas grown last year | 2 | 6 | 4 |
| Bunches of bananas grown this year | 1 | 2 | 3 |
| **Total :** | | | |

Total number of bunches of bananas grown = ☐

**2. Razia has 328 marbles. Her friend Kavana gave her 133 marbles as a gift. How many marbles does Razia have now?**

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328 + 133 = ?

Is the sum more than 450 or less?



**Find the answer.**

| | 100 | 10 | 1 | |
|---|---|---|---|---|
| | 3 | 2 | 8 | Marbles |
| + | 1 | 3 | 3 | Marbles |
| | | | | Marbles |

Total number of marbles with Razia = ☐

## Exercise 3.1

**Solve the following problems. Before finding the answer estimate the sum.**

**1) Both Ashok and Nishchita have a rose garden each. There are 266 Roses in Ashok's garden and 314 rose in Nischita's garden. Totally how many roses are there?**

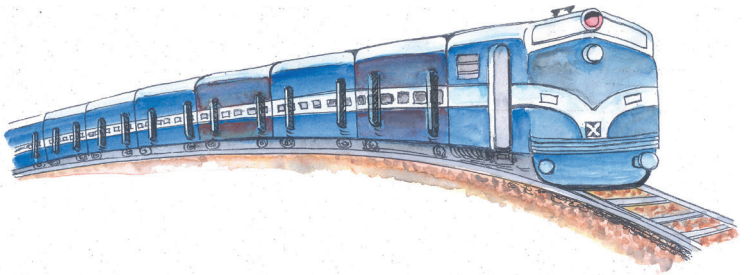




| | | 100 | 10 | 1 |
|---|---|---|---|---|
| Roses in Ashok's garden | | 2 | 6 | 6 |
| Roses in Nishchitha garden | + | 3 | 1 | 4 |
| Total number of roses. | | | | |

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2. Observe the moving train. There are 116 passengers in coach-numbers C-1 and 130 passangers in coach C-3. What is the total number of passengers travelling in two coaches?



| | 100 | 10 | 1 |
|---|---|---|---|
| Passengers in compartment C-1 | | | |
| Passengers in compartment C-3 + | | | |
| Total number of passengers | | | |

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**3) A teacher has identified talented students in drawing and singing as follows.**

| Students | Singers | Artists | Total |
|---|---|---|---|
| Boys | 112 | 284 | |
| Girls | 121 | 248 | |
| Total | | | |

**Find out:-**

1. Total number of singers _____
2. Total number of artists _____
3. Total number of singers and artists _____

# Addition

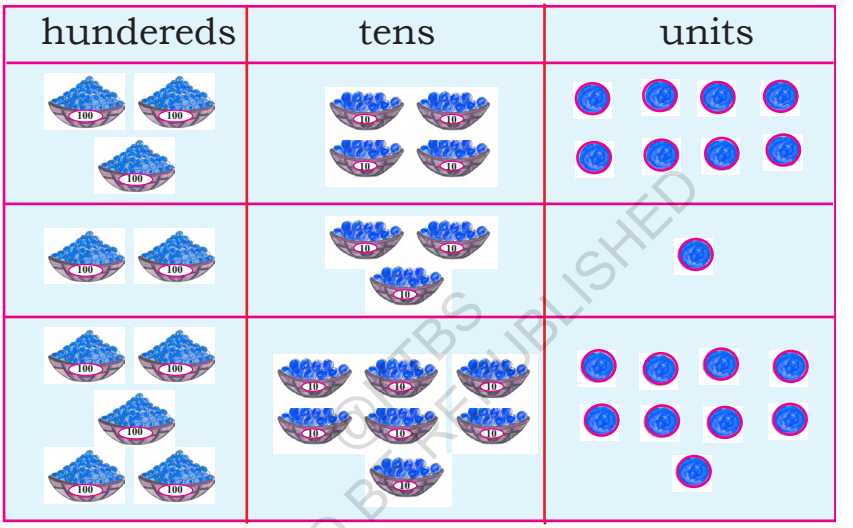
## Addition without carrying.

In your previous class you have learnt the addition of 2 digit numbers. Continue the same with the 3 digit numbers.

**Example 1.**

What is the sum of 348 and 231?

Add these numbers as shown in the figure




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Write the above picture in place value table numerically as follows

### Steps of Addition:

1.Write the numbers according to their place value vertically.

2. Add the numbers in units place 8+1 = 9. Write 9 in units place.

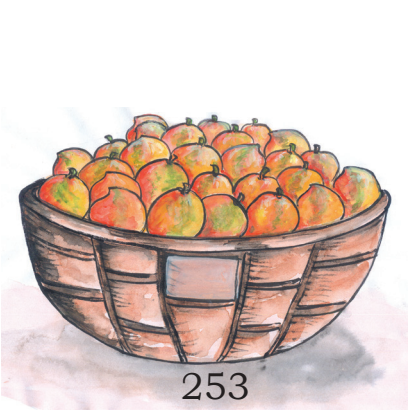
| | Hundred | Ten | unit |
|---|---|---|---|
| | 3 | 4 | 8 |
| + | 2 | 3 | 1 |
| = | 5 | 7 | 9 |

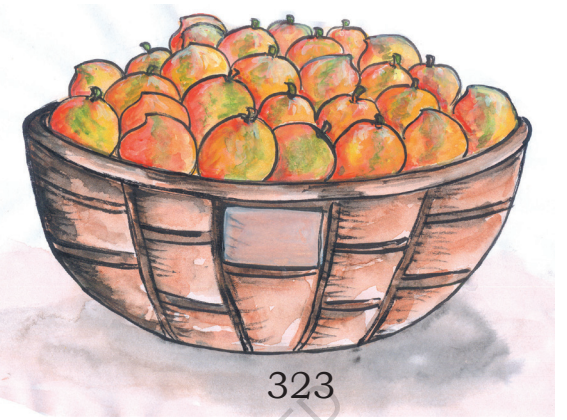
3. Add the numbers in tens place 4+3 = 7. Write 7 in ten place.

4. Add the numbers in hundreds place 3+2 = 5 write 5 in hundered place.

Therefore sum of 348 and 231 = 579

**Example 2.** **There are 253 mangoes in a basket and 323 in another basket. How many mangoes are there in these two baskets?**




253 + 323= ?

| | Hundreds | Tens | Units |
|---|---|---|---|
| | 2 | 5 | 3 |
| + | 3 | 2 | 3 |
| **Total** | 5 | 7 | 6 |

| Groups | | |
|---|---|---|
| Hundreds | Tens | Units |
| 100 100 | 10 10 10 10 10 | 1 1 1 |
| 100 100 100 | 10 10 | 1 1 1 |
| 100 100 100 100 100 | 10 10 10 10 10 10 10 | 1 1 1 1 1 |

Step 1: Add units 3+3=6

Step 2: Then add tens 5+2=7

Step 3: Add hundreds 2+3=5

Total is 576

Therefore the total number of mangoes in two baskets is. ☐

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## Write in expanded form and add.

Add 576 and 422

| | Hundreds | Tens | Units |
|---|---|---|---|
| | 4 | 2 | 2 |
| + | 5 | 7 | 6 |
| **Total** | **9** | **9** | **8** |

| Expanded form | | |
|---|---|---|
| 400 | 20 | 2 |
| 500 | 70 | 6 |
| **900** | **90** | **8** |

When 576 is added to 422, its total is 998.

**Another Method.**

Add 243 and 716

**Step 1:** Write number in vertical column according to place value.

| Hundreds | Tens | Units |
|---|---|---|
| 7 | 1 | 6 |
| + 2 | 4 | 3 |
| | | |

**Step 2:** **Add units and write.**

| Hundreds | Tens | Units |
|---|---|---|
| 7 | 1 | 6 |
| + 2 | 4 | 3 |
| | | 9 |

**Step 3:** **Add tens and write.**

| Hundreds | Tens | Units |
|---|---|---|
| 7 | 1 | 6 |
| + 2 | 4 | 3 |
| | 5 | 9 |

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**Step 4: Add hundreds and write.**

| | Hundreds | Tens | Units |
|---|---|---|---|
| | 7 | 1 | 6 |
| + | 2 | 4 | 3 |
| | 9 | 5 | 9 |

Now without using place value table, write the numbers according to place value and practise addition.

**Example :** What is the sum of 253 and 413?

Write numbers one below the other according to place value and add.

```
  2 5 3
+ 4 1 3
-------
  6 6 6
-------
```

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**In the same way, try yourself.**

1) What is the sum of 404 and 440?

2) What is the sum of 435 and 543?

(3) Srujan and his sister Pooja have saved money in two boxes. Srujan has collected ₹ 248 and Pooja has collected ₹ 438. What is the total amount collected by them?

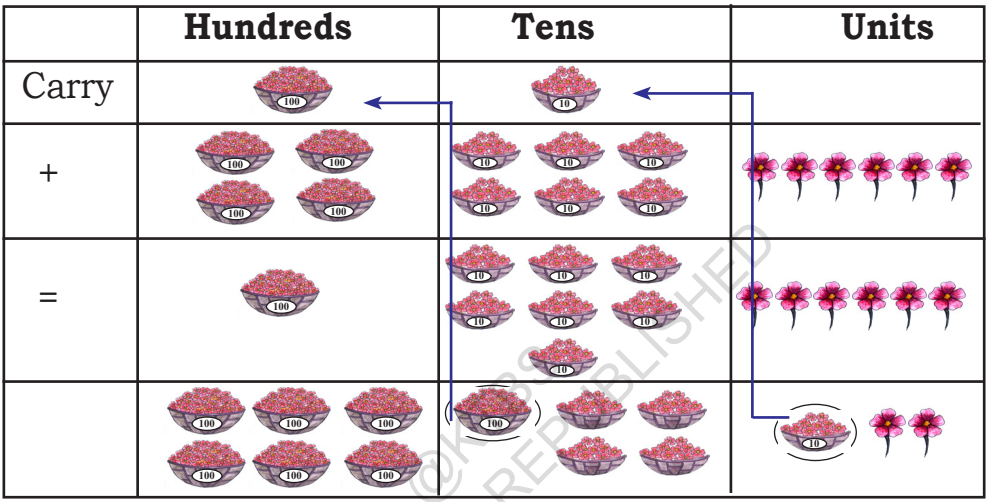


## Addition with carrying.

**Example 2.** You have added 2 digit numbers in your previous class, and continue the same with 3 digit numbers.

What is the sum of 466 and 176 ?

**Add these two numbers by carrying as shown in the figure below**




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**Write the above figure in place value table numerically as follows.**

| | Hundreds | Tens | Units |
|---|---|---|---|
| Carry | 1 | 1 | |
| | 4 | 6 | 6 |
| + | 1 | 7 | 6 |
| | 6 | 1 4 | 1 2 |

### Steps in addition of 3 digit numbers by carrying

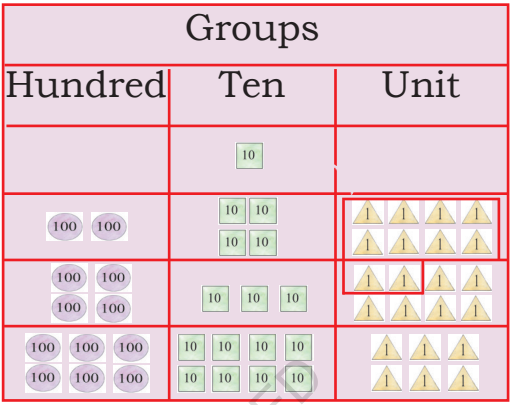
1. Write the numbers according to their place value vertically.
2. Add the digits in unit place, 6+6 =12 = write 2 in unit palce and carry 1 to tens place.
3. Add the digits in tens place 1+6+7=14 = write 4 in tens place and carry one to hundreds place.

4. Now add the digits in hundreds place 1+4+1= 6 = write 6 in hundreds place.

Therefore sum of 466 and 176 = 642

Example 3: 248 + 438 = ?

| Hundreds | Tens | Units |
|---|---|---|
| | 1 | |
| 2 | 4 | 8 |
| 4 | 3 | 8 |
| 6 | 8 | 6 |




**Step 1:** Add units in unit group, make 1 group, add to tens group. (as shown by arrow mark), write the remaining units in unit place.

**Step 2:** Add number in group and write in ten place.

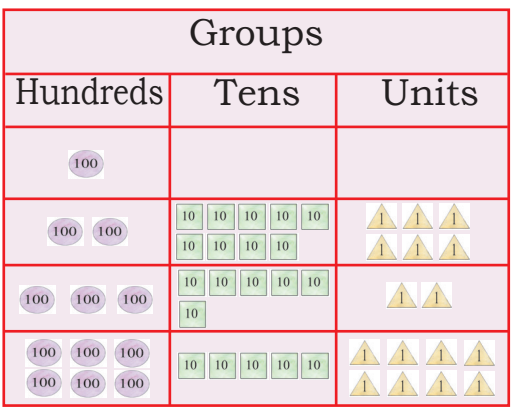
**Step 3:** Add 100 s in group and write in hundreds place.

Similarly add,

299 + 362 =

Example 4: 296 + 362 = ?

| Hundreds | Tens | Units |
|---|---|---|
| 1 | | |
| 2 | 9 | 6 |
| 3 | 6 | 2 |
| 6 | 5 | 8 |




**Step 1:**

Add all Units in unit groups.

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**Step 2:**

Group all 10 to make 100's and add to hundreds group, and write the left out tens in tens answer place.

**Step 3:**

**Then Add** 100 In hundreds group and write in hundreds place. Write the answer in the group numerically.

In 1 units group - 8

In 10 tens group - 5

In 100 hundreds group - 6

Therefore sum of 296 and 362 is 658

## Expand and add

Example 5: Find the sum of 365 and 246

| | Hundreds | Tens | Units | Expanded form | | |
|---|---|---|---|---|---|---|
| | 1 | 1 | | 100 | 10 | |
| | 3 | 6 | 5 | 300 | 60 | 5 |
| + | 2 | 4 | 6 | 200 | 40 | 6 |
| | 6 | 1 | 1 | 600 | 10 | 1 |

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**Another method :**

* Add : 696 and 146

**Step 1:**

Write numbers in place value in vertical column.

| Hundreds | Tens | Units |
|---|---|---|
| 6 | 9 | 6 |
| 1 | 4 | 6 |

**Step 2:** Add units and write, carry 10 and write ten place.

| Hundreds | Tens | Units |
|---|---|---|
| 6 | 9 | 6 |
| 1 | 4 | 6 |
| | 1 | 2 |

**Step 3:** Add tens and write, carry 10 ones to the place write.

| Hundreds | Tens | Units |
|---|---|---|
| 6 | 9 | 6 |
| 1 | 4 | 6 |
| | 14 | 2 |

**Step 4:** Add hundreds and write.

| Hundreds | Tens | Units |
|---|---|---|
| 6 | 9 | 6 |
| 1 | 4 | 6 |
| 8 | 4 | 2 |

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Now without using place value table, write numbers in place values and practise addition.

**Example :** Find the sum of 456 and 367

$$\begin{array}{r} {}^{1}4\ {}^{1}5\ 6 \\ +\ 3\ 6\ 7 \\ \hline 8\ 2\ 3 \end{array}$$

Try yourself :

1) Find the sum of 605 and 387.

2) Find the sum of 578 and 277.

**Remember**

* The Number added is 'addend' Ex: 825 addend
* The Number to be added is 'addendum + 112 addendum
* Answer after adding is 'sum' 937 Sum

## Exercise 3.2

1. Write the following number in place value table and add.

**Example :**

500 + 301

| | H | T | U |
|---|---|---|---|
| | 5 | 0 | 0 |
| + | 3 | 0 | 1 |
| | 8 | 0 | 1 |

1) 175 + 201

| | H | T | U |
|---|---|---|---|
| | | | |
| + | | | |
| | | | |

2) 372 + 627

| | H | T | U |
|---|---|---|---|
| | | | |
| + | | | |
| | | | |

3) 610 + 270

| | H | T | U |
|---|---|---|---|
| | | | |
| + | | | |
| | | | |

4) 444 + 444

| | H | T | U |
|---|---|---|---|
| | | | |
| + | | | |
| | | | |

5) 711 + 211

| | H | T | U |
|---|---|---|---|
| | | | |
| + | | | |
| | | | |

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## II.Write the numbers in place value table and add.

**Example :**

172 + 179

| H | T | U |
|---|---|---|
| 1 | 1 | |
| 1 | 7 | 2 |
| 1 | 7 | 9 |
| 3 | 5 | 1 |

1) 411 + 299

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

2) 362 + 428

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

3) 715 + 176

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

4) 628 + 325

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

5) 547 + 278

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

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## III. Write the numbers in the vertical column and find their sum as shown in the example.

**Example :** 427+ 132

```
  4 2 7
+ 1 3 2
-------
  5 5 9
-------
```

1. 333 + 555  2. 841 + 136  3. 504 + 405

4. 720 + 171  5. 205 + 473  6. 461 +28

## IV. Write the numbers in the vertical column and find the sum.

**Example :** 527+284

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ \ \ } \\ 5\ 2\ 7 \\ +\ 2\ 8\ 4 \\ \hline 8\ 1\ 1 \end{array}$$

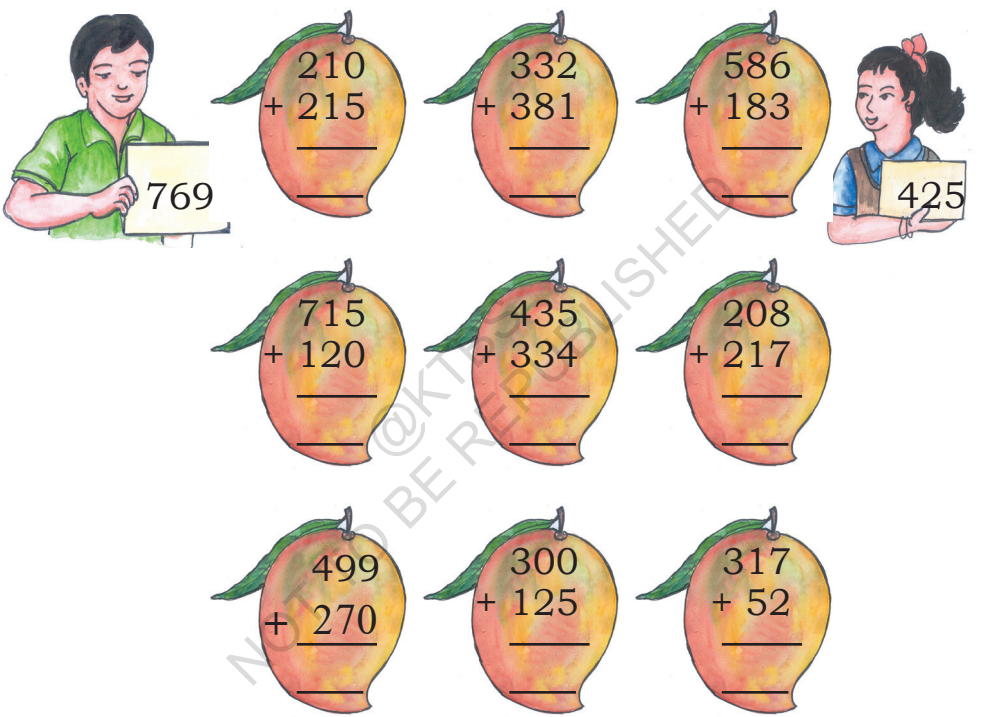
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1) 474+359  2) 684+310  3) 578+190

4) 336+478  5) 552+391  6) 481+888

## Do and enjoy

Observe the number cards that Gopal and Surekha are holding in the picture below. Do the sums written on mangoes. Give the mangoes with answer 769 to Gopal and 425 to Surekha by drawing a line. Keep the remaining mangoes with you.




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How many mangoes do Gopal and Surekha get?

How many mangoes did you get?

## Frame problems

Given below are some more addition problems. Find the answer and compare them.

| | | | | |
|---|---|---|---|---|
| 215 | 235 | 200 | 300 | 175 |
| + 115 | + 95 | + 130 | + 30 | + 155 |
| ___ | ___ | ___ | ___ | ___ |
| ___ | ___ | ___ | ___ | ___ |

What is the answer you got for each sum?

330

## Try yourself

Is it possible to frame differnt addition problems to get same answer in all ? Frame addition problems in different ways.

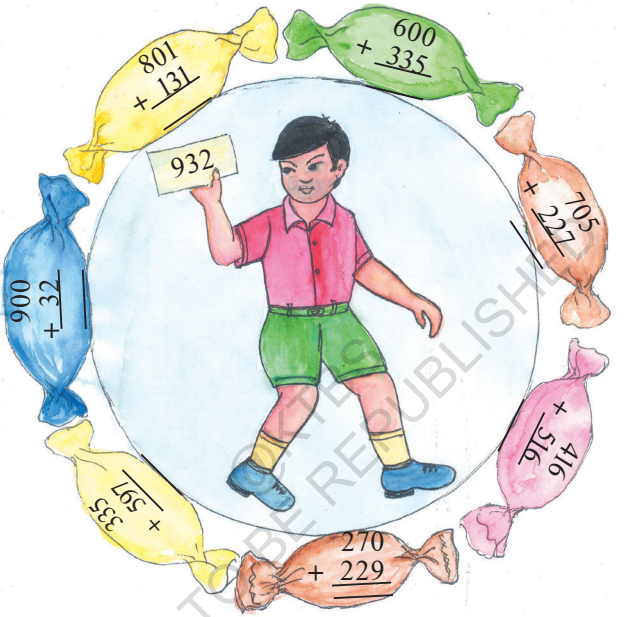
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| **Example :** | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 90<br>+ 65<br>**155** | +<br>**155** | +<br>**155** | +<br>**155** | +<br>**155** |
| 150<br>+ 130<br>**280** | +<br>**280** | +<br>**280** | +<br>**280** | +<br>**280** |
| 388<br>+ 188<br>**576** | +<br>**576** | +<br>**576** | +<br>**576** | +<br>**576** |

## Enjoy by doing

### Where is the problem?

Match suitable chocolate with the answer card which Charan is holding, by drawing a line.




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## Exerecise 3.3

### I. Match by drawing line.

| Answer | Problem |
|---|---|
| 1. 401 | 378 + 422 |
| 2. 919 | 467 + 53 |
| 3. 681 | 288 + 113 |
| 4. 800 | 478 + 441 |
| 5. 520 | 327 + 354 |

## II. Frame 2 problems each for the following numbers.

**Example :**

499

200 + 299 = 499

385 + 114 = 499

1) 88 2) 222 3) 615 4) 378

5) 764 6) 300 7) 850 8) 705

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## Estimated Amount

Whose estimation is right?

Observe the picture. Estimate the number of flowers found below in the jasmine climbers.



Thirty

Forty

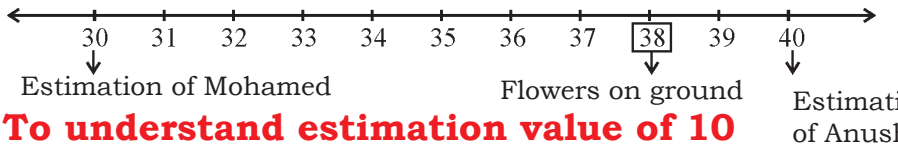
**Mohamed** **Anusha**

Count the flowers on the ground. There are 38 flowers.

Find out whose estimation is correct.

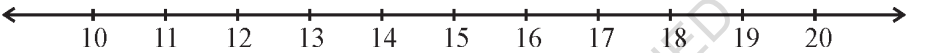
Anusha's estimation is correct, because 38 is near to 40

Now you understand through number line.



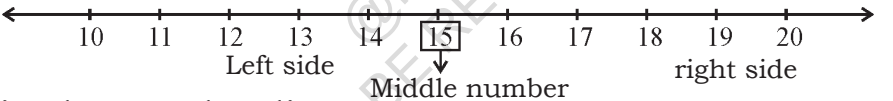

**To understand estimation value of 10**

Draw a line and write the numbers from 10 to 20




Mark the middle number. The number 5 in unit place is the middle number between any two tens.

Then mark left and right side of the middle numbers



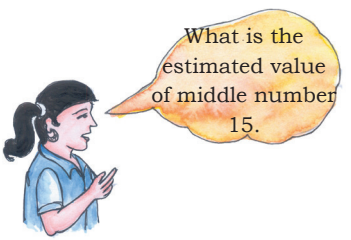

As in the number line.

* The numbers 11,12,13,14 which are towards left side of 15 are near to 10,

Therefore 10's estimated value of 11,12,13,14 is 10.

* The numbers 16,17,18,19 are towards right side of 20 are nearer to 20

Therefore 10's estimated value of 16,17,18,19 is 20

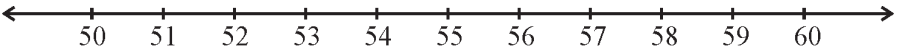



The estimated value between any 2 tens is estimated to its next 10. Therefore the estimated value of 15 is 20.

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## Try yourself:

Answer the following question by observing number line.




1. Ten's estimated value of 52 is _____
2. Ten's estimated value of 57 is_____
3. Ten's estimated value of 55 is_____
4. Ten's estimated value of 54 is _____
5. Ten's estimated value of 56 is _____

## Observe the following examples :

**Example 1:** What is the ten's estimated value of 43?

* The number in units place is less than 5 therefore, write the number in tens place as it is 4.
* Then write '(Zero)' '0' in units place.

When '0' is written in units place after 4, it becomes 40.

**Example 2:** What is the ten's estimated value of 47?

* The number in units place is more than 5.

Therefore. Add 1 to the number in tens place = 4+1= 5

* Write '0' in unit place.

After 5, if '0' is written in units place it becomes 50.

Therefore the tens estimated value of 47 is 50.

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### Remember

* When estimating to tens place, observe the number in unit place.
* If the number in units place is less than 5, estimate it to previous tens place.
* When the number in units place is 5 or more than 5, estimate it to its next tens place.

**Try yourself :**

Observe the numbers in units place: Write the estimated 10's value for the following numbers.

1. The tens estimated value of 23 is _____
2. The tens estimated value of 66 is_____
3. The tens estimated value of 85 is _____
4. The tens estimated value of 78 is _____
5. The tens estimated value of 93 is _____

Let us learn to estimate the sum in the given addition problems.

**Example 1:** Estimate the sum of 46 and 23.

Estimated value of 46 is 50
Estimated value of 23 is 20
Estimated sum is 70

Therefore the estimated sum of 46 and 23 is 70

**Example 2:** Estimate the sum of 21 and 35

Estimated value of 21 is 20
Estimated value of 35 is 40
Estimated sum is 60

Therefore the estimated sum of 21 and 35 is 60

**Example 3:** Estimate sum of 55 and 26

Estimated value of 55 is 60
Estimated value of 26 is 30
Estimated sum is 90

Therefore the estimated sum of 55 and 26 is 90

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## Exercise 3.4

**I. Find the estimated sum for the following :-**

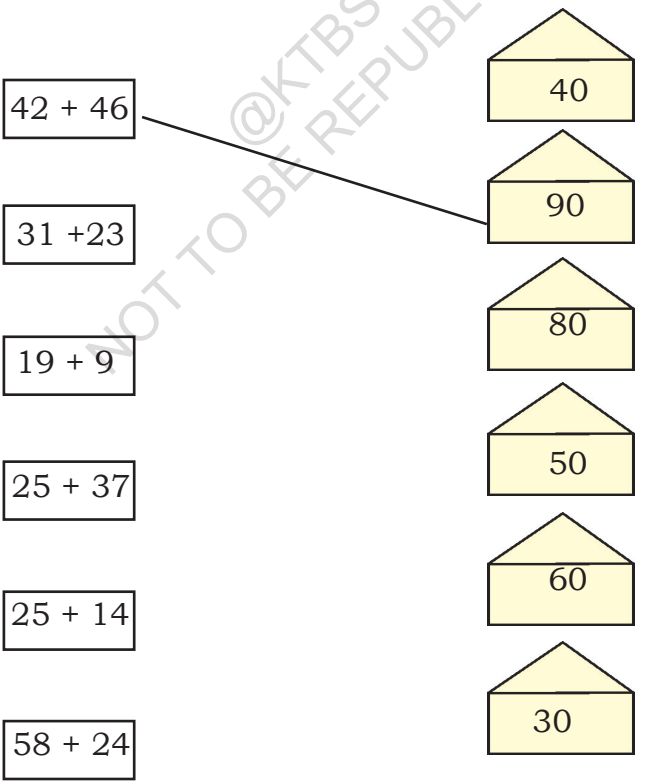
1. 62 and 23

2. 29 and 47

3. 71 and 15

4. 58 and 35

**II. Some addition problems are on the cards. Find the estimated sum then, match the card with the suitable envelopes, by drawing line.**




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Chapter-4

# SUBTRACTION

F1U6C4

## After studying this chapter you can

- subtract three digit numbers without borrowing and by borrowing,
- solve problems with using place value table,
- solve subtraction problems,
- solve subtraction problems for various situations expressed in stories & diagrams,
- frame problems on subtraction,
- estimate the difference between two given numbers which are less than 99.

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## Books Selling

Ranganna and Rajanna were old friends, both of them own a book shop on either side of the road.



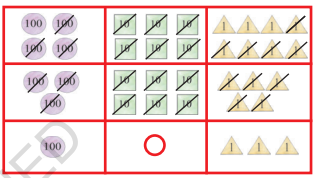

Now, there are, 468 books in Ranganna's Shop.
There are 365 books in Rajanna's Shop.
In Ranganna's shop there are more books.
In Rajanna's shop there are less number of books.

**Guess !**

- How many more books are there in Ranganna's shop than in Rajanna's shop ?
- Is it more than 100 or less than 100 ?

Now learn, how many more books are there in Ranganna's shop than in Rajanna's shop. Then verify your guess whether it is correct or not.

| | 100 | 10 | 1 |
|---|---|---|---|
| Books in Ranganna's shop | 4 | 6 | 8 |
| Books in Rajanna's shop | 3 | 6 | 5 |
| Number of more books in Ranganna's shop | 1 | 0 | 3 |



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**As shown above :**

**Step 1 :** First subtract the numbers in units place 1, write the remaining in units place.

**Step 2 :** Subtract the numbers in tens place 10, write the remaining number in tens place.

**Step 3 :** Subtract numbers in hundreds place 100, write the remaining numbers in hundreds place.

Then write them in the form of numbers.

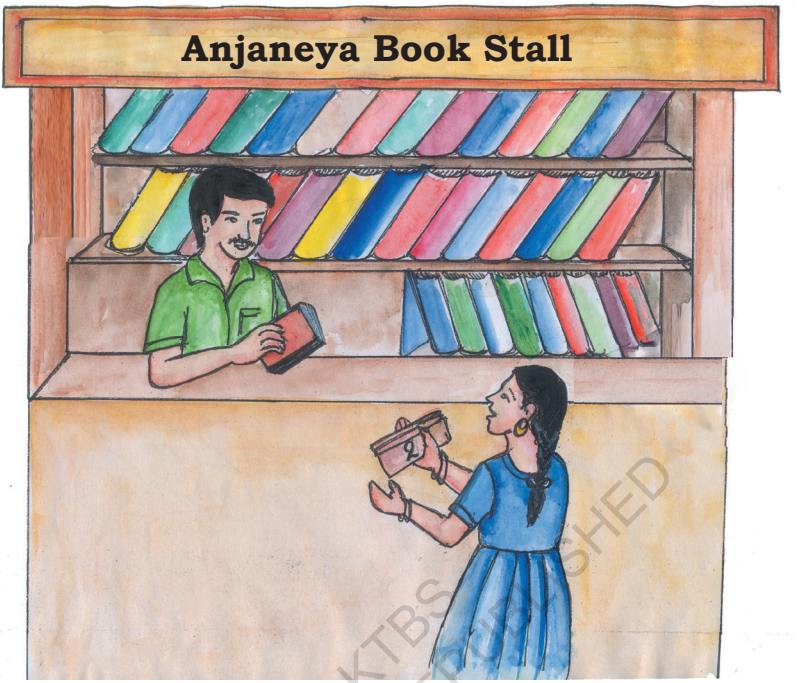
3 in units 1 group

0 in tens 10 group

1 in Hundreds 100 group

Therefore, there are 103 more books in Ranganna's shop than in Rajanna's shop.

## Try yourself




Sushmitha purchased a book for ₹ 150. She gave ₹ 200 to the shop keeper.

How much money should the shop keeper return?

| | 100 | 10 | 1 |
|---|---|---|---|
| Amount paid by Sushmitha =₹ | 2 | 0 | 0 |
| cost of the books purchased= ₹ | 1 | 5 | 0 |
| Amount to be returned by shop keeper | | | |

Therefore, amount returned by the shop keeper to Sushmitha is ₹ .....

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# Help the Monkey

Once in a forest, a fox started to sell bananas. Monkeys and elephants in the forest were very happy.



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In order to purchase fruits monkey has saved ₹ 247. He came to the shop of the fox with that money. He purchased a bunch of bananas for ₹ 158. As the fox is brilliant in calculation, the monkey gave all the money to the fox and told to take ₹ 158. Out of ₹ 274 and give the balance amount. Fox gave ₹ 76 to the monkey as balance amount.

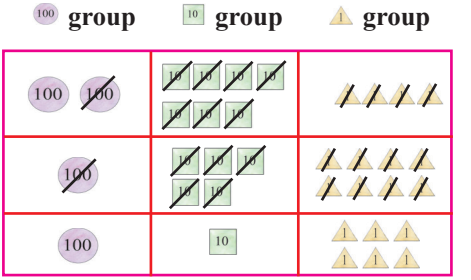
Is the amount retruned by the fox to the monkey correct?

**Guess !**

What amount has to be returned by the fox to the monkey?

Is it more than hundred, or less than hundred ?

| | 100 | 10 | 1 |
|---|---|---|---|
| Amount paid by monkey | 2 | 6 ~~7~~ | 1 4 |
| Cost of banana | 1 | 5 | 8 |
| Remaining amount | 1 | 1 | 6 |




**Step 1** : Start subtraction from 1 group. It is impossible to subtract 8 units from 4 units. Therefore take one ten 10 from 10 group, convert into 10 units and add to 4 units in 1 group. Mark the taken 10 group with x sign. Now in group there are 14 units. Subtract 8 from 14, 6 units remain. Write 6 in units place. Strike off units as shown above.

**Step 2** : When one 10 is borrowed to units place from 7 tens, 6 tens remain. Now subtract 5 tens from 6 tens and write remaning 1 ten in 10 place. Strike off as shown above.

**Step 3** : Subtract 1hundreds ( 100 group), from 2 hundreds write the remaining one hundred in 100 group. Strike off 100 as shown above. Then write all in the form of numbers. In 100 group 1, in 10 group 1, in 1 group 6 that means remaining amount is ₹ 116.

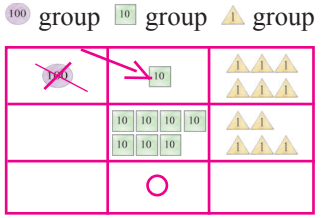
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## Think Yourself:

The fox has cheated the monkey, hasn't it ?

Then what is the exact amount to be returned to the monkey? How much more money should fox has to return ?

| | | 100 | 10 | 1 |
|---|---|---|---|---|
| Exact amount to be returned | ₹ | 1 | 1 | 6 |
| Already returned amount | ₹ | (-) | 7 | 6 |
| Amount to be returned | | | | |




**Step 1** : Subtract 6 units from, 6 units in 1 group, write remaining in units place.

**Step 2** : Subtracting 7 tens from 1 ten is not possible in 10 group. Therefore take one hundred from 100 group and convert them into 10 and write them with 10 group. Put × mark on borrowed hundred. Now in 10 group there are 11 tens means there are 110. Subtract 7 tens from 11 tens. Write the answer in tens place.

**Step 3** : Since one 100 from 100 place is borrowed to 10 group, nothing is remaining. Write this in the form of 0.

Numbers in 100 group ____ ; 10 group ____ and 1 group ___. The remaining amount to be paid by the fox is _____.

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## Exercise 4.2

**1.** Rakshitha has ₹ 265. Ashok has ₹ 134. who has more money and by how much ?



| | 100 | 10 | 1 |
|---|---|---|---|
| ₹ | 2 | 6 | 5 |
| ₹ (-) | 1 | 3 | 4 |
| | | | |



Who has more money _____

difference amount of money ₹. _____

**2. Vikas is reading a novel containing 325 pages. He had already finished reading 224 pages. How many more pages still he has to read?**



Reading a book

| 100 | 10 | 1 |
|---|---|---|
| H | T | U |
| | | |
| | | |

Number of pages Vikas has to read _____

**3. Ramya and Soumya are holding the marks they have obtained in 7th std annual examination. Who has scored less marks? What is the difference in scores?**




Ramya

| 100 | 10 | 1 |
|---|---|---|
| H | T | U |
| | | |
| | | |




Soumya

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Less marks scored by _____

Scored marks _____

**4. Harish and Ramesh are milkmen selling milk. The quantity of milk sold by them is written on milk cans. Who is selling more milk ? How much more milk is sold?**




Ramesh

| 100 | 10 | 1 |
|---|---|---|
| H | T | U |
| | | |
| | | |




Harish

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More milk is sold by _____

Amount of more milk sold is _____

**5. Both Rajesh and Shilpa are travelling by bus. Tickets bought by them are shown below. Number on Rajesh's ticket is 827, Shilpa's ticket number is 764. Find the difference between the two numbers.**




| 100 | 10 | 1 |
|---|---|---|
| | | |
| | | |
| | | |




Therefore the difference between the ticket numbers of Rajesh and Shilpa is _____

## Subtraction without borrowing

You have learnt subtraction of 2 digit numbers in your previous class. continue the same with 3 digit numbers.

**Example 1:**

Find the difference between 456 and 325

Subtract these two numbers as shown in the figure below.

| | Hundreds | Tens | units |
|---|---|---|---|
| |  |  |  |
| – |  |  |  |
| = |  |  |  |

Write the above figure numerically in place value table

### Steps involved in Subtraction

| | Hundred | Ten | Unit |
|---|---|---|---|
| | 4 | 5 | 6 |
| - | 3 | 2 | 5 |
| = | 1 | 3 | 1 |

1. Write the numbers vertically according to their place value.
2. Subtract the numbers in units place 6-5 =1 write 1 in units place
3. Subtract the numbers in tens place 5-2=3 write 3 in tens place.
4. Subtract the numbers in hundreds palce 4-3=1 write 1 in hundreds place.

Therefore the difference between 456 and 325= 131

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## Example 2 :

Rahul and his sister Rashi are threading beads.

Already Rahul had threaded 228 beads and Rashi had threaded only 105 beads. Therefore, how many more beads are threaded by Rahul.

228-105 = ?



| 100 | 10 | 1 |
|---|---|---|
| 2 | 2 | 8 |
| (-)1 | 0 | 5 |
| 1 | 2 | 3 |

| Groups | | |
|---|---|---|
| Hundreds | Tens | Units |
| 100 ~~100~~ | 10 10 | 1 1 1 1 1 1 1 1 |
| 100 | | 1 1 1 1 1 |
| 100 | 10 10 | 1 1 1 |

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**As shown above**

**Step 1 :** Subtract numbers in unit place and write the answer in units place.

**Step 2 :** To subtract in tens group, as there is no number, write the same number in tens place.

**Step 3 :** Subtract number in hundreds place and write the remaining number in hundreds place.

Remaining in unit group = 3

Remaining in ten group = 2

Remaining in hundred group = 1

Therefore, Rahul has threaded 123 more beads than Rashi.

**Other Method :** (Subtract by writing in expanded form

**Example :** Subtract 278 by 399

| | 100 | 10 | 1 |
|---|---|---|---|
| | 3 | 9 | 9 |
| – | 2 | 7 | 8 |
| | 1 | 2 | 1 |

| Expanded form | | |
|---|---|---|
| 300 | 90 | 9 |
| 200 | 70 | 8 |
| 100 | 20 | 1 |

Therefore, when 278 is subtracted from 399, 121 remains.

**Another method : (Subtract by writing in place value table)**

**Example :** Subtract 572 from 978.

**Step 1:** Write according to place value in vertical column

| | H | T | U |
|---|---|---|---|
| | 9 | 7 | 8 |
| – | 5 | 7 | 2 |
| | | | |

**Step 2 :** Subtract units and write the answer

| | | | |
|---|---|---|---|
| | 9 | 7 | 8 |
| – | 5 | 7 | 2 |
| | | | 6 |

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**Step 3 :** Subtract 10s and write

| | H | T | U |
|---|---|---|---|
| | 9 | 7 | 8 |
| – | 5 | 7 | 2 |
| | | 0 | 6 |

**Step 4 :** Subtract 100s and write

| | H | T | U |
|---|---|---|---|
| | 9 | 7 | 8 |
| – | 5 | 7 | 2 |
| | 4 | 0 | 6 |

Practice subtraction by writing numbers in place value and without using place vlaue table.

**Example 1.** What is the difference between 870 and 240 ?

| | H | T | U |
|---|---|---|---|
| | 8 | 7 | 0 |
| – | 2 | 4 | 0 |
| | 6 | 3 | 0 |

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**Try Yourself :**

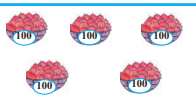
1. What is the difference between 744 and 443 ?

2. What is the difference between 295 and 221 ?

# Subtraction with borrowing

Substract 3 digit numbers as you subtract 2 digit numbers

**Example 1:** Find the difference between 872 and 586
Subtract these two numbers as shown in the figure below.

| | Hundreds | Tens | Units |
|---|---|---|---|
| | |  |  |
| |  |  |  |
| - |  |  |  |
| = |  |  |  |

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Write the above figure numerically in place value table

| | Hundreds | Tens | Units |
|---|---|---|---|
| | 7 | 16 | 12 |
| | ~~8~~ | ~~7~~ | ~~2~~ |
| - | 5 | 8 | 6 |
| = | 2 | 8 | 6 |

| After borrows | | | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

Steps involved in borrowing 3 digit numbers.

**Step 1:** Write the numbers vertically according to their place value.

**Step 2:** Write the units in units place according to place value as you have to borrow one ten from tens place.

1 tens + 2 units
= 10+2
= 12

Now subtract the numbers in units place.

12-6=6 Write 6 in units place

**Stage 3 :** As 1 ten is carried to the digit in unit place there are 6 tens in tens place.

Remaining 6 is in tens place, is smaller than 8.8 can not be subtracted by 6, borrow a hundred from hundreds place.

1 hundred = 10 tens

10 tens + 6 tens = 16 tens

Now subtract the digits in tens place.

16-8=8 Write 8 in tens place.

**Stage 4 :** As a hundred is carried to tens place 7 hundreds are remaining in hundreds place.

Now subtract the digits in hundreds place.

7-5 =2 Write 2 in hundreds place.

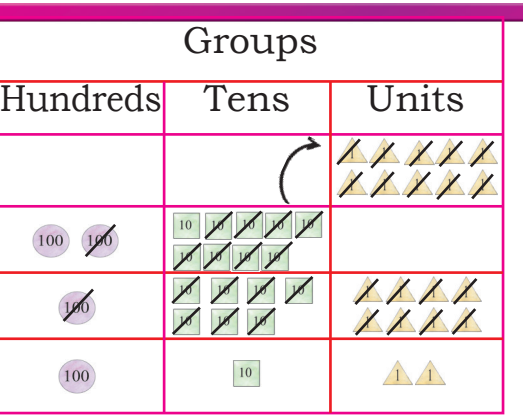
Therefore the difference between 872 and 586 is =286

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**Example 2:** The teacher told Shrikala and Shrinath to collect various types of leaves. After counting, we know that Shrikala has collected 290 leaves, Shrinath collected 178 leaves. Therefore, how many more leaves are collected by Shrikala than Shrinath.



| | 100 | 10 | 1 |
|---|---|---|---|
| | | 8 | 10 |
| | 2 | ~~9~~ | ~~0~~ |
| - | 1 | 7 | 8 |
| | 1 | 1 | 2 |




**Step 1 :** It is not possible to subtract 8, 1 from '0' units Therefore borrrow one 10 to unit place and write ten 1 as shown in the picture by arrow mark. Then subtract 8 1 from 10 1 and write the answer in unit place.

**Step 2 :** Now eight 10 are remaining in tens group, subtract 10 seven from eight 10, write the remaining in the tens place.

**Step 3 :** Subtract one 100 from two 100 and write remaining 1 100 in hundreds place.

Then write the answer from groups of places in the form of numbers.

Number in units group = 2

Number in tens group = 1

Number in hundreds group =1

Therefore 112 more leaves are there in Shrikalas collection than Shrinath.

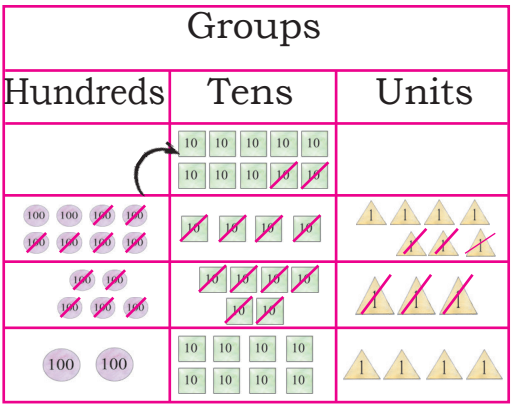
In the same way, subtract 563 from 847

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Step 1: Subtract three 1 from seven unit group and write the remaining 4, 1 in units group.

847 - 563 = ?

| 100 | 10 | 1 |
|---|---|---|
| 7 | 14 | |
| ~~8~~ | ~~4~~ | 7 |
| - 5 | 6 | 3 |
| 2 | 8 | 4 |




Step 2: It is not possible to subtract six 10 from four 10. Therefore (as shown by the arrow mark), borrow one 100 from hundreds group, write 14. Subtract 6 from 14 then write the answer in tens group.

Step 3: Now 7 100 are remaining in hundreds group. Subtract 5 100 from 7 100, write the remaining in hundreds place.

Afterwards, count and write in the form of numbers.

Number in units place = 4

Number in tens place = 8

Number in hundreds place = 2

Therefore, when 563 is subtracted from 847, 284 remains.

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**Other method : Subtraction in expanded form**

**Example :** Subtract 258 from 376

| | H | T | U |
|---|---|---|---|
| | 3 | ~~7~~ 6 | 16 ~~6~~ |
| - | 2 | 5 | 8 |
| | 1 | 1 | 8 |

| Expanded form | | |
|---|---|---|
| 300 | 60 ~~70~~ | 10+6 16 6 |
| 200 | 50 | 8 |
| 100 | 10 | 8 |

Therefore, When 258 is subtracted from 376, 118 remains.

**Another Method :** Subtraction according to place value table by writing in vertical column

**Example :** Subtract 455 from 844

**Step 1 :** Write numbers in place value table

| | H | T | U |
|---|---|---|---|
| | 8 | 4 | 4 |
| - | 4 | 5 | 5 |
| | | | |

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**Step 2 :** Subtract units. It is not possible to subtract 5 from 4. Therefore borrow one 10 from tens place and keep in units place. It becomes 14. Now subtract 5 from 14. Write the answer in units place.

| | H | T | U |
|---|---|---|---|
| | | 3 | 14 |
| | 8 | ~~4~~ | ~~4~~ |
| - | 4 | 5 | 5 |
| | | | 9 |

**Step 3 :** Subtract numbers in tens place. As 1 ten is borrowed to units place, 3 is remaining in tens place. It is not possible to subtract 5 from 3.

| H | T | U |
|---|---|---|
| | 3 | 14 |
| ~~8~~ | ~~4~~ | ~~4~~ |
| - 4 | 5 | 5 |
| 8 | 9 | |

Therefore borrow one 100 from hundreds place and keep in tens place. Now in tens place there are 13 tens. Subtract 5 from 13 and write answer in tens place.

**Step 4:** Subtract numbers in hundreds place. As 1 hundred is borrowed from 8 hundred, 7 hundred remains. Therefore subtract 4 hundred from 7 hundred and write the answer in hundreds place.

| $_{7}$H | $_{13}$T | $_{14}$U |
|---|---|---|
| ~~8~~ | ~~4~~ | ~~4~~ |
| - 4 | 5 | 5 |
| 3 | 8 | 9 |

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Now without using place value table, write numbers according to place value and practise subtraction.

**Example 1.** What is the difference between 437 and 278?

| | | |
|---|---|---|
| 3 | 12 | 17 |
| 4 | 3 | 7 |
| ~~2~~ | ~~7~~ | ~~8~~ |
| 1 | 5 | 9 |

**Try yourself :**

**Example 1 :** What is the difference between 650 and 580?

**Example 2 :** What is the difference between 698 and 389?

**Remember**

Subtract small number from a big number

- The number from which you subtract is called 'minuend'
- The number to be subtracted is called 'subtrahend'
- The answer is called 'difference'

**Example :**

4 9 1 -minuend
- 2 8 0 -Subtrahend
2 1 1 - difference

## Exercise 4.1

**I. Solve the following subraction problems using place value table.**

**Example :**

888-525

| | H | T | U |
|---|---|---|---|
| | 8 | 8 | 8 |
| – | 5 | 2 | 5 |
| | 3 | 6 | 3 |

1) 750 - 700

| | H | T | U |
|---|---|---|---|
| | | | |
| – | | | |
| | | | |

2) 999 - 119

| | H | T | U |
|---|---|---|---|
| | | | |
| – | | | |
| | | | |

3) 640 - 530

| | H | T | U |
|---|---|---|---|
| | | | |
| – | | | |
| | | | |

4) 777 - 335

| | H | T | U |
|---|---|---|---|
| | | | |
| – | | | |
| | | | |

5) 827 - 426

| | H | T | U |
|---|---|---|---|
| | | | |
| – | | | |
| | | | |

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## II. Solve the following subraction problems using place value table.

**Example :** 900-27

| | H | T | U |
|---|---|---|---|
| | ~~8~~ | $^{9}$~~1~~0 | 10 |
| | 9 | 0 | 0 |
| – | 2 | 7 | 5 |
| | 6 | 2 | 5 |

1) 338 - 129

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

2) 566 - 272

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

3) 470 - 162

| H | T | U |
|---|---|---|
| | | |
| | | |
| – | | |
| | | |

4) 502 - 311

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

5) 733 - 180

| H | T | U |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

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## III. Find the difference by subtracting as shown in the example

**Example :** 327 - 224

```
  3 2 7
- 2 2 4
-------
  1 0 3
-------
```

1) 999 - 222 2) 710 - 510 3) 806 - 304

4) 379-379 5) 682 - 471 6) 580 - 160

## IV. Subtract and find the difference as shown in the examples

**Example :** 465 - 246

$$\begin{array}{r} \phantom{-}\ 5\ \ 15 \\ 4\ 6\ 5 \\ -\ 2\ \cancel{4}\ \cancel{6} \\ \hline 2\ 1\ 9 \\ \hline \end{array}$$

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1) 433 - 244 2) 920 - 311 3) 800 - 110

4) 430 - 225 5) 348 - 259 6) 909 - 419

## Framing of problems

In the previous chapter you have learnt to frame problems on addition in different methods. In the same way let us frame problems for subtraction. Observe the following solved problems and their differences.

| | | | | |
|---|---|---|---|---|
| 371 | 760 | 528 | 977 | 314 |
| - 250 | - 639 | - 407 | - 856 | - 193 |
| 121 | 121 | 121 | 121 | 121 |

Problems are different but answers are same.

**Try yourself :**

Try to get the following answer by framing some problems, as above

1) 490

| **Example** | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 695<br>- 205<br>490 | - ____<br>490 | - ____<br>490 | - ____<br>490 | - ____<br>490 |

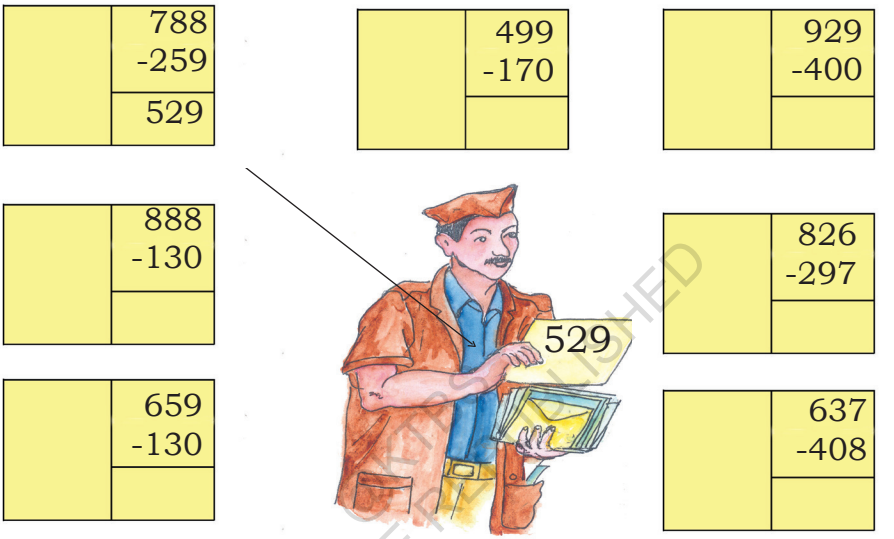
2) 200

| **Example** | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 355<br>- 155<br>200 | - ____<br>200 | - ____<br>200 | - ____<br>200 | - ____<br>200 |

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## Do and enjoy

Find out which post card matches with the number that the postman is holding. Draw a line and show the post card which matches it.




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## Exercise 4.2

### I. Match by drawing lines.

| | Answers | Problems |
|---|---|---|
| 1. | 425 | 568 - 322 |
| 2. | 777 | 750 - 243 |
| 3. | 246 | 877 - 277 |
| 4. | 600 | 618 - 193 |
| 5. | 507 | 865 - 88 |

## 2. Frame two problems each for the numbers given below

**Example :**

752

917 - 165 = 752

854 - 102 = 752

1. 79

2. 180

3. 376

4. 801

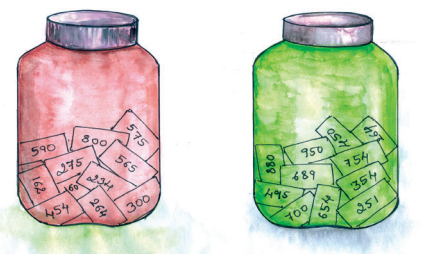
5. 400

6. 729

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### Play and learn

Observe the bottles A and B, both of them have 3 digit number cards.




A B

Now play with your friend, take out one card each, from the bottle A and bottle B.

Write the numbers of each card in your note book. Add them and then subtract small number from a big number.

Again take two cards from 2 bottles. Continue like this by adding and subtracting.

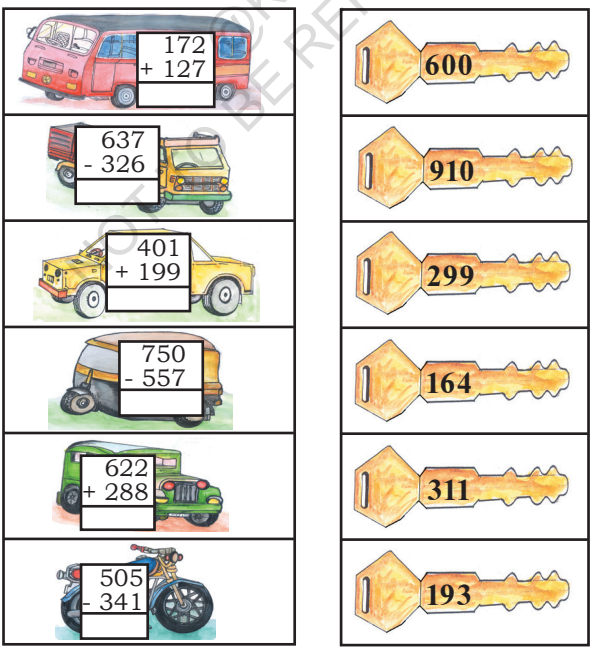
Continue this game for 10 minutes. One who does more sums correctly, wins.

| | | | | | | |
|---|---|---|---|---|---|---|
| From bottle A | 472 | 520 | From bottle A | 223 | 223 |
| From bottel B | + 520 | - 472 | From bottle B | +223 | - 223 |
| | 992 | 48 | | 446 | 000 |

## Do and learn

## Which is the key ?

By solving the problems given on the vehicles, find the right key. Draw lines and match them.




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## Estimated difference

In the previous unit you have learnt to estimate the value of 10. In the same way, learn to estimate the difference in subtraction.

**Example 1 :** Find the estimation of difference between 24 and 11

estimated value of 24 is 20

estimated value of 11 is - 10

estimated difference 10

Therefore estimated difference of 24 and 11 is 10

**Example 2 :** Find the estimated difference between 87 and 34

estimated value of 87 is 90

estimated value of 34 is - 30

estimated difference is 60

Therefore the estimated difference of 87 and 34 is 60.

**Example 3 :** Find the estimated difference between 55 and 16

estimated value of 55 is 60

estimated value of 16 is - 20

estimated difference is 40

Therefore the estimated difference of 55 and 16 is 40.

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## Exercise 4.3

**I. Estimate the following numbers and find the difference.**

1)89 and 19

2) 34 and 8

3)64 and 32

4) 85 and 47

**II. Find the estimated difference in the following sums and match the answer on the objects by drawing lines.**

1) 72-44

2) 27-14

3) 94-75

4) 88-18

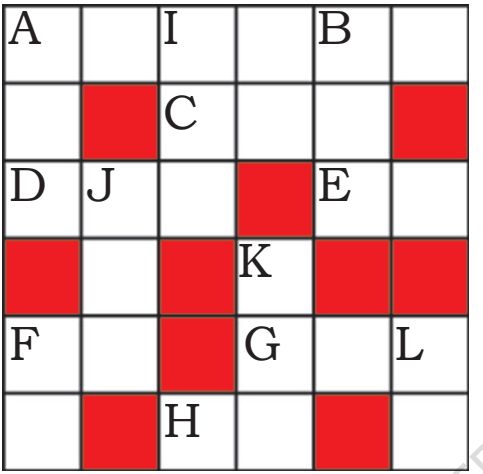
5) 55-21

6) 62-9




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## Cross Numbers Puzzel




Solve the following addition and subtraction problems. Write the answers in suitable empty boxes.

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### Left to right

A. 421+360

B. Estimated difference of 94 and 32.

C. 536-344

D. 275+286

E. Estimated sum of 45 and 17

F. 211-128

G. 101+98

H. 428-346

### Top to bottom

A. 905-200

I. 999-888

B. 341+286

J. 932-289

K.454+158

F. Estimated sum of 24 and 58

L. 450-36

Chapter-5

# MULTIPLICATION

M7D7D7

**After studying this chapter you can:**

- understand multiplication as repeated addition,
- identify the sign of multiplication,
- construct multiplication tables from 6 to 10,
- use multiplication facts in situation,
- multiply two digit numbers using standard algorithm and Lattice multiplication algorithm.

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Third (3rd) std Students prepared 5 types of flowers using coloured papers. Among them Pooja, Vishal Bharath & Ramya exhibited the flowers holding in their hands. What is the total numbers of flowers held in their hands?

Now, totally how many flowers are there in their hands? 5 + 5 + 5 + 5 = 20.

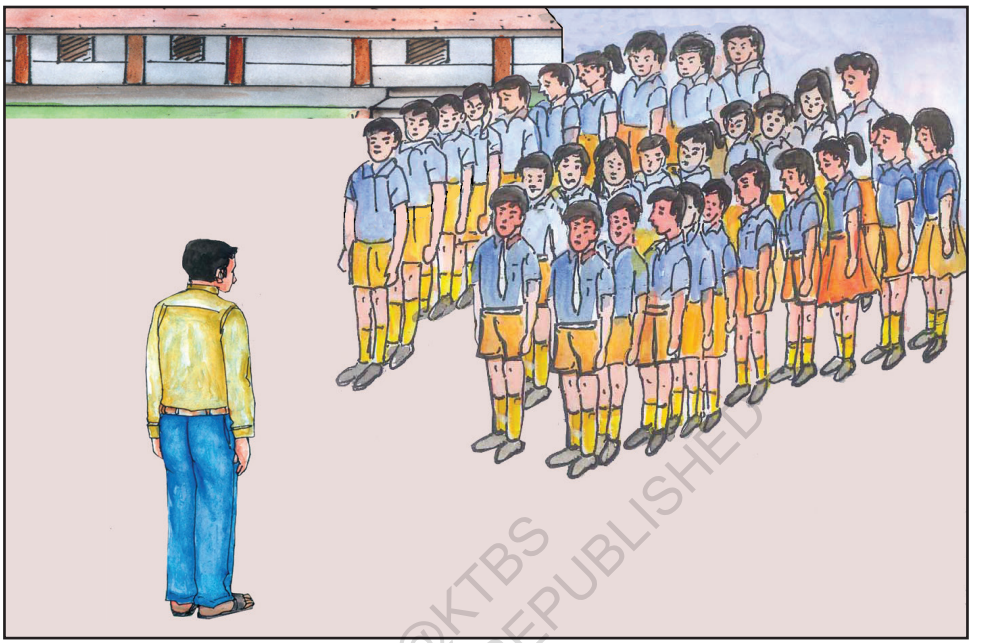
5 is repeated 4 times

4 times 5 is 20

5 x 4 = 20



**Example 1 :** Situation of students standing in a line for morning prayer.



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Number of lines = 3

Number of students in each line = 10

Total Number of students standing for prayer = 10+10+10 = 30

10 is repeated 3 times.

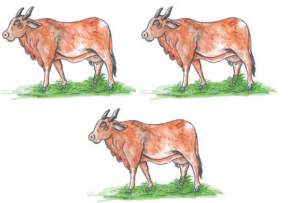
3 times 10 is 30.

10 x 3 = 30

Multiplication is a short form of adding the same number repeatedly.

∴ **Multiplication is repeated addition.**

**Example 2 :**



There are 3 cows.
How many legs have they altogether ?
4 + 4 + 4 = 12
3 times 4 is 12
4 x 3 = 12.

**Example 3 :**

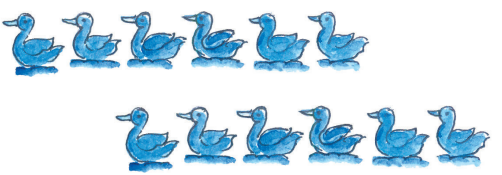
There are 2 birds in each cage. How many are there in 2 cages ?



2 + 2 = 4
2 times 2 is 4
2 x 2 = 4.

## Exercies 5.1

**I. Write the addition form and multiplcation form for the following.**

| Pictures | Addition form | Multiplication form |
|---|---|---|
|  | 3+3 = 6 | 3 x 2 = 6 |
|  | | |
|  | | |
|  | | |

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## II. Write in mulitiplication form

| Addition form | Multiplication form |
|---|---|
| 4 + 4 + 4 + 4 = 16 | 4 x 4 = 16 |
| 15 + 15 = 30 | |
| 8 + 8 + 8 = 24 | |
| 3 + 3 + 3 + 3 + 3 = 15 | |
| 5 + 5 + 5 + 5 + 5 + 5 = 30 | |

## III. Match the multiplication form with the addition form by drawing a line:




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## Sign of multiplication

**Example 1.**

Ramesh went to a shop to buy coconuts for a function. He asked the shopkeeper to give 12 coconuts. The shop keeper gave him 3 coconuts at a time so as to make 12.



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The number of coconuts taken by Ramesh is:

3+3+3+3 =12

4 times 3 is 12.

3 × 4 =12

4 times 3 is written as 3 × 4

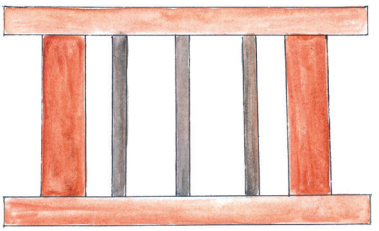
The word "times" is represented as "x".

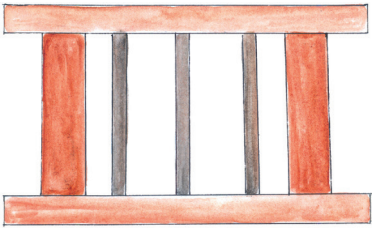
Addition form is converted to multiplication form using a sign 'x'

**'x' is a sign of multiplication.**

**Example 2 :**

There are 3 rods in each window. How many rods are there in 2 windows?





3 + 3 = 6

2 times 3 is 6

3 × 2 = 6

3 is a multiplicand.

x-is a multiplication sign.

2 is a multiplier.

6 is a Product.

3 × 2 = 6

↓ ↓ ↓

multipicand multiplier product.

∴ multiplicand × multiplier = product

* The number which gets multiplied is the multiplicand.
* The number which multiplies is the multiplier.
* The answer obtained is the Product.

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## Exercise - 5.2

**I. Rewrite using '×' sign:-**

1) 2 times 3 is _____
2) 4 times 6 is _____
3) 5 times 2 is _____
4) 3 times 7 is _____
5) 8 times 2 is _____
6) 9 times 4 is _____

## II. Write the multiplicand, multiplier and product of the multiplication form in the given box.

1) 3 × 6 = 18

Multiplicand ☐

Multiplier ☐

Product ☐

2) 2 × 5 = 10

Multiplicand ☐

Multiplier ☐

Product ☐



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3) 7 × 7 = 49

Multiplicand ☐

Multiplier ☐

Product ☐

4) 8 × 4 = 32

Multiplicand ☐

Multiplier ☐

Product ☐

## III.

1) If you multiply any number by 'O' what will be the product ?

2) If you multiply any number by 1 what will be the product ?

# Multiplication tables

## Complete the tables given below.

| | | | | |
|---|---|---|---|---|
| 1×1 = 1 | 2×1 = 2 | 3×1 = 3 | 4×1 = 4 | 5×1 = 5 |
| 1×2 = | 2×2 = | 3×2 = | 4×2 = | 5×2 = |
| 1×3 = | 2×3 = | 3×3 = | 4×3 = | 5×3 = |
| 1×4 = | 2×4 = | 3×4 = | 4×4 = | 5×4 = |
| 1×5 = | 2×5 = | 3×5 = | 4×5 = | 5×5 = |
| 1×6 = | 2×6 = | 3×6 = | 4×6 = | 5×6 = |
| 1×7 = | 2×7 = | 3×7 = | 4×7 = | 5×7 = |
| 1×8 = | 2×8 = | 3×8 = | 4×8 = | 5×8 = |
| 1×9 = | 2×9 = | 3×9 = | 4×9 = | 5×9 = |
| 1×10 = | 2×10 = | 3×10 = | 4×10 = | 5×10 = |

6×1 = 6

6×2 = 12

6×3 = 18

6×4 = 24

6×5 = 30

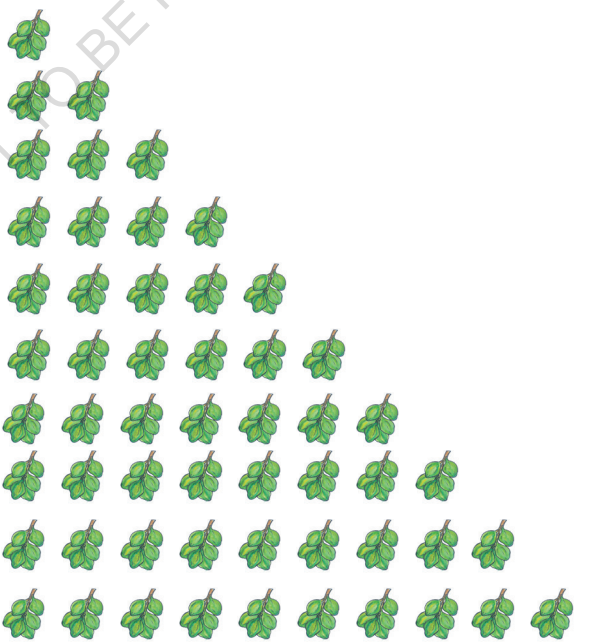
6×6 = 36

6×7 = 42

6×8 = 48

6×9 = 54

6×10= 60



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7×1 = 7

7×2 = 14

7×3 = 21

7×4 = 28

7×5 = 35

7×6 = 42

7×7 = 49

7×8 = 56

7×9 = 63

7×10 = 70



8 × 1 = 8

8 × 2 = 16

8 × 3 = 24

8 × 4 =32

8 × 5 =40

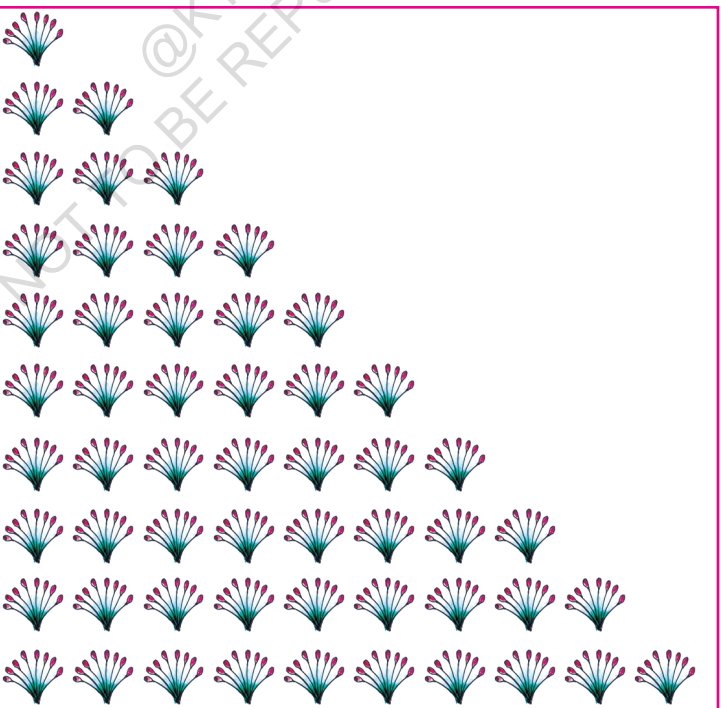
8 × 6 =48

8 × 7 =56

8 × 8 =64

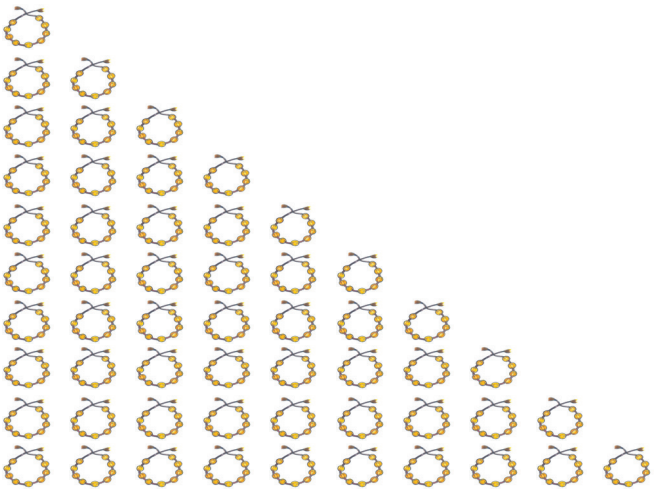
8 × 9 =72

8 × 10=80



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9 × 1 = 9
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



10 × 1 = 10
10 × 2 = 20
10 × 3 = 30
10 × 4 =40
10 × 5 =50
10 × 6 =60
10 × 7 =70
10 × 8 =80
10 × 9 =90
10 × 10=100



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**Note :** 1. If any number is multiplied by 1, the product is the number itself.
**Example:** 3×1=3, 4×1=4, 5×1=5
2. If any number is multiplied by 'O'the product is zero.
**Example:** 3×0=0, 4×0=0, 5×0=0

## Easy way of Framing Tables.

| Tables of 2 | | Table of 3 | | | Table 4 | | | | Tables 5 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 5 |
| 3 | 4 | 4 | 5 | 6 | 5 | 6 | 7 | 8 | 6 | 7 | 8 | 9 | 10 |
| 5 | 6 | 7 | 8 | 9 | 9 | 10 | 11 | 12 | 11 | 12 | 13 | 14 | 15 |
| 7 | 8 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 16 | 17 | 18 | 19 | 20 |
| 9 | 10 | 13 | 14 | 15 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 11 | 12 | 16 | 17 | 18 | 21 | 22 | 23 | 24 | 26 | 27 | 28 | 29 | 30 |
| 13 | 14 | 19 | 20 | 21 | 25 | 26 | 27 | 28 | 31 | 32 | 33 | 34 | 35 |
| 15 | 16 | 22 | 23 | 24 | 29 | 30 | 31 | 32 | 36 | 37 | 38 | 39 | 40 |
| 17 | 18 | 25 | 26 | 27 | 33 | 34 | 35 | 36 | 41 | 42 | 43 | 44 | 45 |
| 19 | 20 | 28 | 29 | 30 | 37 | 38 | 39 | 40 | 46 | 47 | 48 | 49 | 50 |

To frame multiplication table 2, write the first two number that is 1 and 2 in the first row, next two numbers 3 and 4 in the second row continue writing in this way till 20. Mark the numbers in the second column. You will get Table 2.

Continuing in the same way frame the next tables.

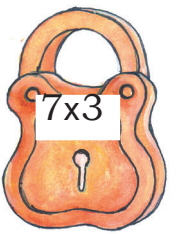
**Fun with Table 9**

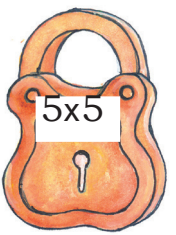
$9 \times 1 = 9 \rightarrow 9$
$9 \times 2 = 18 \rightarrow 1+8=9$
$9 \times 3 = 27 \rightarrow 2+7=9$
$9 \times 4 = 36 \rightarrow 3+6=9$
$9 \times 5 = 45 \rightarrow 4+5=9$
$9 \times 6 = 54 \rightarrow 5+4=9$
$9 \times 7 = 63 \rightarrow 6+3=9$
$9 \times 8 = 72 \rightarrow 7+2=9$
$9 \times 9 = 81 \rightarrow 8+1=9$
$9 \times 10 = 90 \rightarrow 9+0=9$

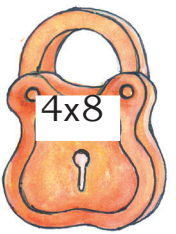
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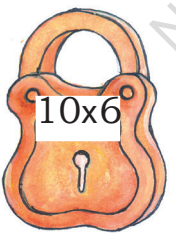
## Exercise 5.3

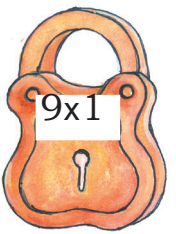
**I. Work out the multiplication fact given on each lock and tick (✓) the correct key to open the lock:**

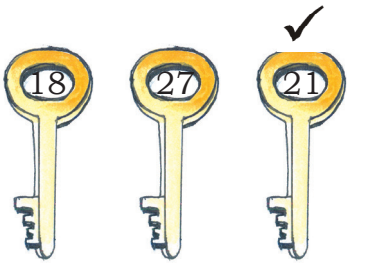


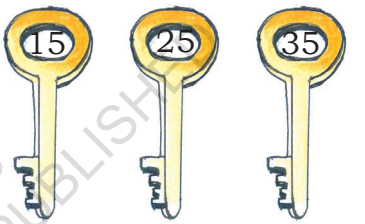



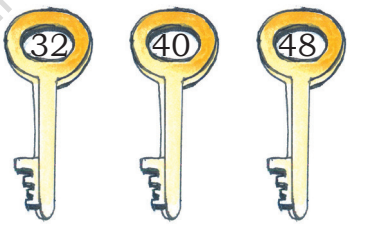



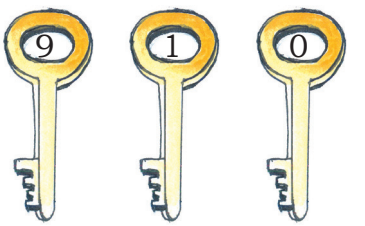



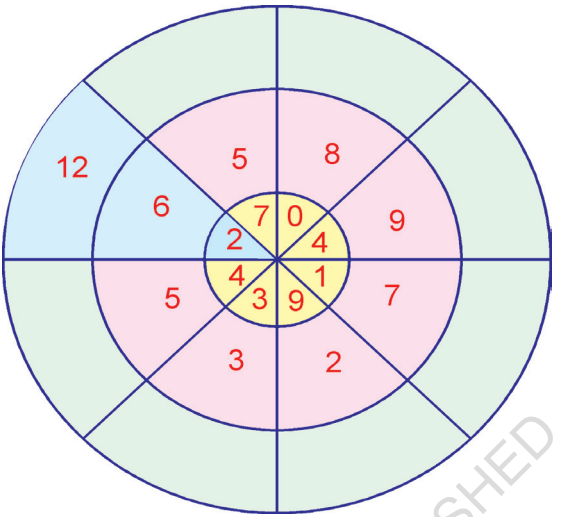







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## II. Observe the given chart and fill the boxes with their products.




## III. Multiply and write the product.

1) 2 × 5 = _____

2) 4 × 1 = _____

3) 3 × 0 = _____

4) 9 × 3 = _____

5) 7 × 9 = _____

6) 6 × 4 = _____

7) 8 × 6 = _____

8) 7 × 2 = _____

9) 10 × 5 = _____

10) 3 × 6 =_____

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## Multiplication facts in daily life:

**Example 1:** Rahim went to a shop with his father to buy some items of stationery. There he takes 3 note books, 4 pencils, 6 chocolates. and 5 pens.

Let us find how much money is spent by his father on each item.

Cost of each note book = ₹ 6

Cost of 3 note books = 3×6
= ₹ 18

Cost of each pencil = ₹ 2

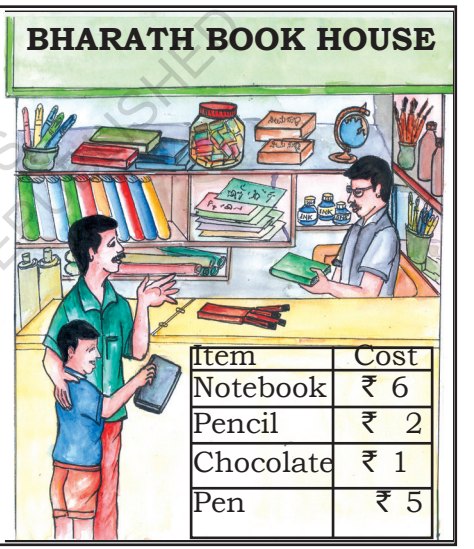
Cost of 4 pencils = 4×2
= ₹ 8

Cost of each chocolate = ₹ 1

Cost of 6 chocolates = 6×1
= ₹ 6

Cost of each pen = ₹ 5

Cost of 5 pens = 5×5
= ₹ 25




**Symbol of Rupee is '₹'**

Money spent by Rahim's father on each item is

For 3 note books = ₹ 18

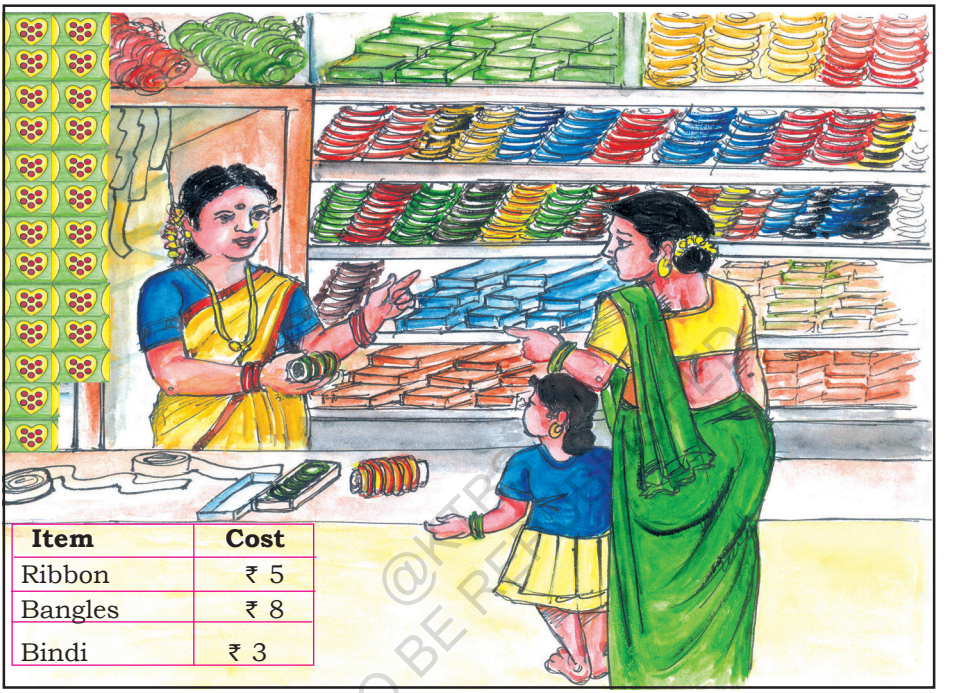
For 4 Pencils = ₹ 8

For 6 chocolate = ₹ 6

For 5 pens = ₹ 25

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**Example 2:** For the School day Divya bought 3 metre (m) of ribbon, 2 pairs of bangles and 4 packets of bindis. The cost of each item is given below find the amount spent by Divya on these items.



| Item | Cost |
|---|---|
| Ribbon | ₹ 5 |
| Bangles | ₹ 8 |
| Bindi | ₹ 3 |

Cost of 1m of ribbon = ₹ 5

Cost of 3m of Ribbon = 3×5

= ₹ 15

Cost of 1 Pair of bangle = ₹ 8

Cost of 2 pairs of bangles = 2×8

= ₹ 16

Cost of 1 Packet of bindi = ₹ 3

Cost of 4 Packets of bindi = 4×3

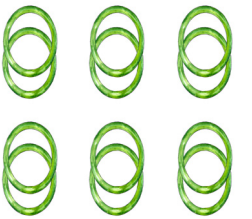
= ₹ 12

**Amount spent by Divya = ₹ 43**

```
  1 5
  1 6
+ 1 2
  ---
  4 3
  ---
```

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## Exercise 5.4



### I. Solve these

1. 6 pairs of bangles.

   2 bangles in each pair

   How many bangles are there in all?

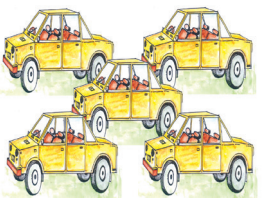
   6 × 2 = 12 **Ans :12**

2. 4 bunches, 6 grapes in each bunch.

   How many grapes are there ?

   _____**Ans** : _____





3. 5 Cars. Each car has 4 wheels

   How many wheels are there ?

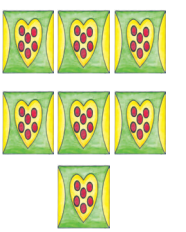
   _____**Ans** : _____



4. 3 girls, Each girl has 1 umbrella

   How many umbrellas are there ?

   _____**Ans** : _____



5. 7 packets, 6 bindies in each packet

   How many bindies are there in all ?

   _____**Ans** : _____

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## II. Solve the following :

1. 4 Students can be seated on one bench.
   How many can be seated on 8 benches ?

   8 × 4 = 32 Students.

2. 10 plants can be planted in one row. How many can be planted in 6 rows?

   _____×_____ = _____ plants.

3 Cost of one ice cream is ₹6.
What is the cost of 9 ice creams?

_____ × _____ = _____days.

4. There are 7 days in a week.
   How many days are there in 4 weeks?

   _____ × _____ = _____days.

5. There are 9 players in a kho-kho team.
   How many players are there in 4 teams?

   _____ × _____ = _____ players

Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday

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## Multiplication of two digit numbers:

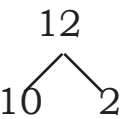
To buy bangles for Gowri Ganesha festival Rekha's mother takes her to a bangle store. She buys 3 dozens of bangles of different colours. The shop keeper rolls each dozen of bangles in different papers and puts them in a cover.

Rekha asks her mother, How many bangles are there in the cover ?

1 dozen bangles, means 12 bangles.



To find this multiply 12 by 3




**I Method : 12 × 3**

Step 1 : Split 12 into 10 and 2 = (10+2) × 3

Step 2 : Multiply 10 by 3 and 2 by 3=(10×3)+(2×3)

Step 3 : On multiplying we get 30 and 6 = 30+6

Step 4 : Add 30 and 6. We get 36 = 36

: Product of 12 and 3 is 36

12 × 3 = 36

: There are 36 bangles in 3 dozens.

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## II Method : 12 × 3

**Step 1** : Multiply 2 ones by 3, we get 6 ones

12×3

2 × 3 =6 units. Write 6 in ones place 6

**Step 2** : Multiply 1 ten by 3 we get 3 tens

12 × 3

36

1ten×3=3 ten, Write 3 in tens place

∴ 12 × 3 = 36

| 2. 32 × 4 | 3. 20 × 3 |
|---|---|
| 32 x 4<br>128<br>**Step 1** : 4×2 = 8 ones<br>write 8 in ones place<br>**Step 2** : 4×3 =12 tens<br>write 2 in tens place<br>write 1 in hundreds place | 20 x 3<br>60<br>**Step 1** : 3 × 0 = 0 ones<br>Write 0 in ones place.<br>**Step 2** : 3 × 2 = 6 tens.<br>Write 6 in tens place. |

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# Exercise 5.5

## I. Find the product.

1. 12 x 4 = _____

2. 33 x 3 = _____

3. 22 x 4 = _____

4. 24 x 2 = _____

5. 91 x 5 = _____

6. 82 x 4 = _____

7. 74 x 2 = _____

8. 50 x 2 = _____

9. 80 x 4 = _____

## II. Solve the following

1. 12 books can be placed in each shelf. How many can be placed in 4 such shelves ?

Ans : _____ books

2. A school bus can carry 30 students per trip. How many students can be carried in 3 trips?

Ans : _____ students

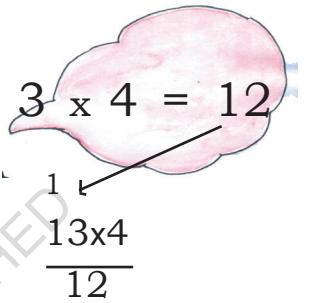
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3. There are 11 players in a cricket team. How many players are there in 3 teams?

Ans : _____

## Multiplication of two digit number by one digit number with carryover system

**Example** 1: 13×4




**Step 1** : Multiply 3 ones by 4

3×4=12 ones. 1 ten 2 ones.

Write 2 in ones place.

Carry 1 to tens place.

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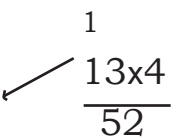
**Step 2** : Multiply 1ten by 4

1×4=4 tens. Add 1ten to it

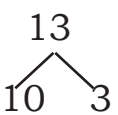
4tens + 1ten = 5 tens.

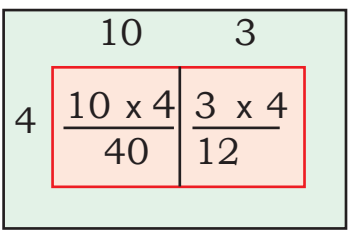
Write 5 in tens place

∴ 13×4=52




## Another Method:




4 0
+1 2
5 2

13 x 4 = 52

**Example 2 :**

1
12 x 5
60

2 x 5 =10 Write 0 in ones place.
Carry 1 to tens place.
1 x 5 = 5 5 + 1 =6
Write 6 in tens place.

---

**Example 3 :**

1
32 x 6
192

2 x 6 = 12 Write 2 in ones place.
Carry 1 to tens place.
3 x 6 = 18, 18 + 1 = 19
Write 9 in tens place.
Write 1 in hundreds place.

---

**Example 4 :**

3
65 x 7
455

5 x 7 = 35 Write 5 in ones place.
Carry 3 to tens place.
6 x 7 = 42 42 + 3 = 45
Write 5 in tens place.
Write 4 in hundreds place.

---

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## Exercise 5.6

### I. Find the Product:

1. 26 x 3 _____
2. 38 x 2 _____
3. 56 x 5 _____
4. 23 x 9 _____
5. 74 x 6 _____
6. 48 x 4 _____
7. 83 x 5 _____
8. 26 x 8 _____
9. 42 x 7 _____

## II. Solve the following

1. There are 12 pencils in a packet. How many pencils are there in 8 packets?

   Number of pencils in a packet =12

   Number of pencil packets = 8

   Total number of pencils =

   12 x 8
   ____



2. A flower has 5 petals. There are 25 flowers in a vase. How many petals are there in all?

   Number of flowers in a vase = ___

   Number of petals in a flower = ___

   Total number of petals = ___

   x
   ____
   ____

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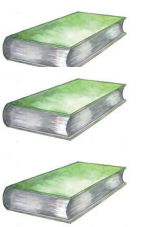
3. The cost of a book is ` 65 Find the cost of 3 such books.

   Cost of each book = _____

   Number of books = _____

   Cost of 3 such books = _____

   x
   ____
   ____



## Multiplication of two digit number by two digit number :

**Example 1:**

1. There are 10 apples in each basket. How many apples are there in 11 such baskets?

Split 11 into 10 and 1

$11 \times 10$

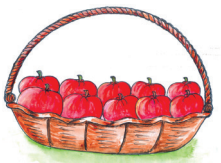
$\therefore 11 \times 10 = (10 + 1) \times 10$

$= (10 \times 10) + (1 \times 10)$

$= 100 + 10$

$= 110$

$$\begin{array}{r} 100 \\ +10 \\ \hline 110 \end{array}$$



There are 110 apples in 11 baskets.

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**I Method :**

Split 11 into 10 and 1 Split 12 into 10 and 2

**Example 2 : Multiply : 11x12**

$11 \times 12 = (10 + 1) \times (10 + 2)$

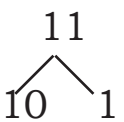
$= 10 \times (10+2) + 1 \times (10+2)$

$= (10 \times 10) + (10 \times 2) + (1 \times 10) + (1 \times 2)$

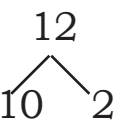
$= 100 + 20 + 10 + 2$

$= 132$

---




| | 10 | 2 |
|---|---|---|
| 10 | 10 x 10<br>100 | 10 x 2<br>20 |
| 1 | 1 x 10<br>10 | 1 x 2<br>2 |




$$\begin{array}{r} 100 \\ +\ 20 \\ 10 \\ 2 \\ \hline 132 \end{array}$$

**II Method :-**

11 x 12

11 x 12
22

**Step 1 :** Multiply 11 by 2.

Multiply 1 one by 2 ones. 1x2 = 2 ones.

Write 2 in ones place.

Multiply 1 ten by 2 ones, 1x2=2 tens.

Write 2 in tens place.

**Step 2 : Multiply 11 by 1**

Multiply 1one by 1 ten, 1x1=1ten

∴Leaving the place write 1 in tens place

Multiply 1ten by 1ten, 1x1= 1 hundred

Write 1 in hundreds place. Now add it. You will get 132.

11x12
22
11
132

∴ 11 x 12 = 132

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**Example 3 : 13 x 20**

**Step 1** : 3 ones x 0 ones = 0 ones, write 0 in ones place

**Step 2** :1ten x 0 ones = 0 ten, write 0 in tens place.

**Step 3**: 3 ones x 2 tens = 6 ten.

In next step leaving ones place write 6 in tens place.

**Step 4** : 1 ten x 2 tens = 2 hundreds, write 2 in hundreds place.

**Step 5** : Adding all we get 260.

13 x 20
00
+26
260

**Example 4.**

21 x 14

1 x 4 = 4 ones = 4

2 x 4 = 8 tens = 80

1 x 1 = 1 ten = 10

2 x 1 = 2 Hundred = 200

294

21 x14

+ 84

21

294

5. 72 x 13

72x13

216

+ 72

936

## Exercise 5.7

**I. Multiply :**

1. 32 x 14 2. 55 x 11 3. 41 x 22

4. 60 x 15 5. 41 x 23 6. 85 x 10

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## II. Solve the following :-

1. Peter's stamp book has 30 pages. Each page has 12 stamps. Totally how many stamps are there in his book ?

2. There are 43 students in Ramu's class. If each paid ₹ 10 for charity. What is the total amount collected ?

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3. 52 roses are required to make a garland. How many roses are required to make 15 garlands ?