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STANDARD FIVE

Term - I

Volume-2

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SCIENCE
SOCIAL SCIENCE

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MATHEMATICS

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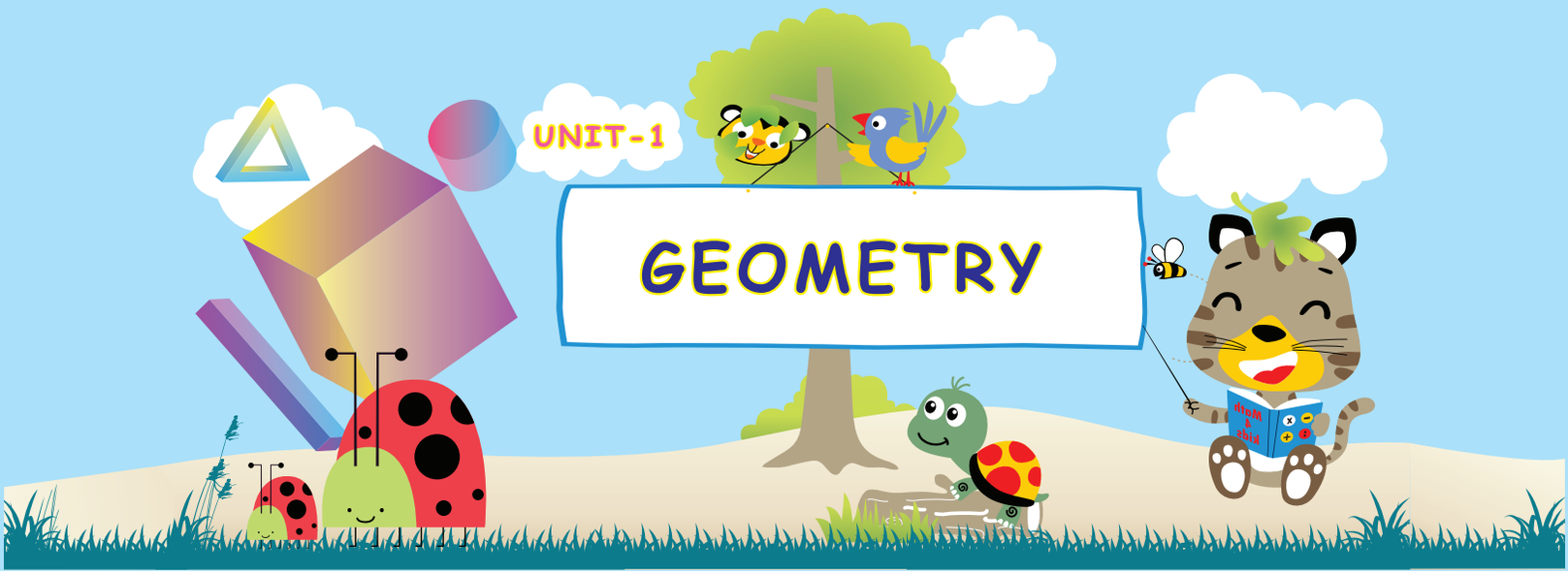


1.1

Able to get the feel of 2-Dimensional perspective while observing drawings of 3-Dimensional objects.

U6IA44

We can identify 2-D and 3-D objects in our day-to-day life.

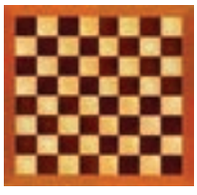


Recall: 2-D shapes

Any shape that can be laid on a flat surface is a 2D-shape.

Examples of 2-D shapes



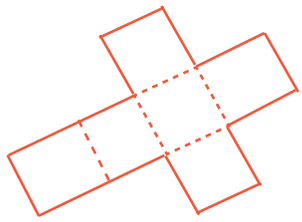



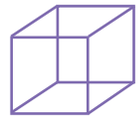
3-D Shapes

3-D Shapes are solid objects that have three dimensions. These dimensions are length, width and height.

Examples of 3-D shapes

1.1a Draw 3-D shapes from 2-D Shapes



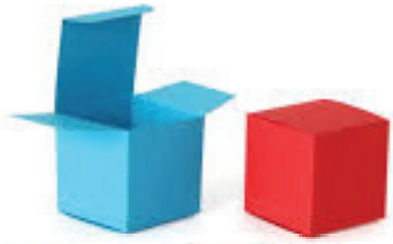


Cube

Properties/characteristics:

- It is a 3-D shape
- It has six faces
- All sides are equal.
- It has 8 vertices and 12 edges.

Examples:



Examples:

Cuboid

Properties/Characteristics

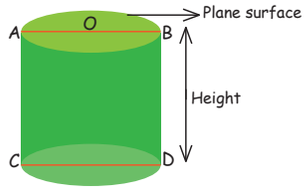
- It is a 3-D shape
- It has six faces
- It's opposite sides are equal
- It has 8 vertices and 12 edges.

Cylinder

Properties/Characteristics

- It is a 3-D shape
- Two bases lie in upper and lower surfaces in a cylinder.
- Height is the distance between the two bases.

Examples:



OA = OB = OC = OD Radius
AC = BD = height

Sphere

Properties/Characteristics

- It is a 3-D shape
- It has one surface
- All points on the surface are at the same distance from the center
- It has no vertices and edges

Examples:

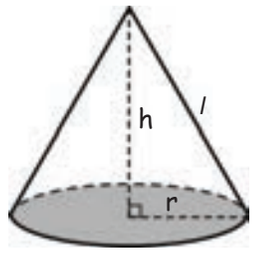
OA-radius
O-Center point

Cone

Properties/Characteristics

- It is a 3-D Shape.
- Base of a cone is circular.
- The distance from the top of the cone to the center of the base is called as height.
- The distance from the apex to any point lying on the circumference of base is called as slant height.
- The height and slant height are not equal.

Examples:



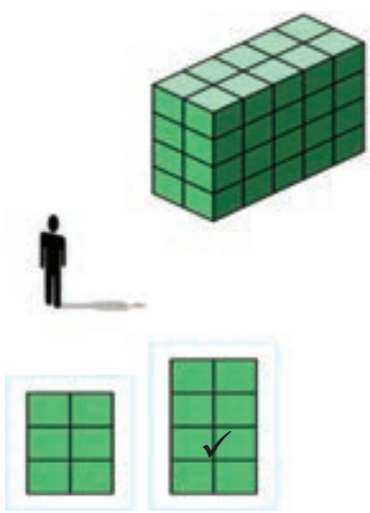
l-slant height
h-height
r-radius

Activity

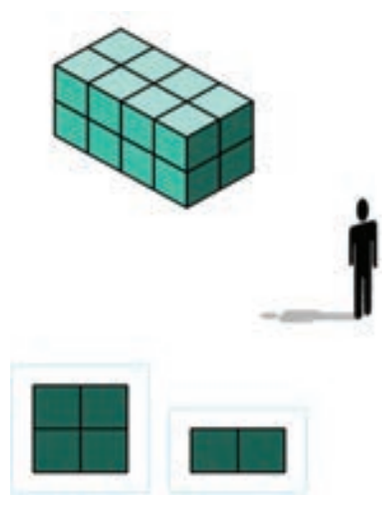
Write the 3-D shapes lying around us

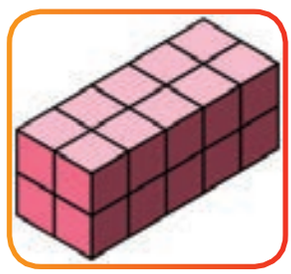
S. No	Objects	shapes	Sides	Corners
1	Dice	Cube	6	8
2				
3				
4				
5				

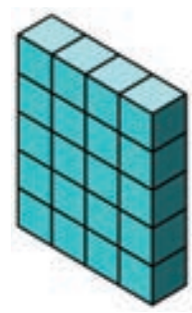
What will you observe, if you look at this object from the front?



What will you observe, if you look at this object from the sideways?







Answer

Answer

Exercise 1.1a

1. Match the following

1. 
2. 
3. 
4. 
5. 

Cuboid

Sphere

Cone

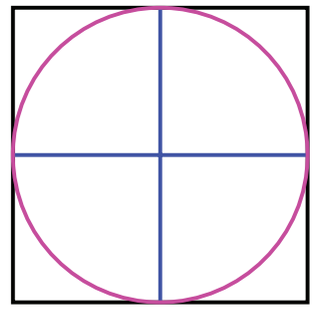
Cylinder

Cube

2. Write/Find True or False

1. Cube is covered by 6 squares. _____
2. The height and slant height of the cone are equal.
   _____
3. The Cuboid has 7 vertices. _____
4. Two bases lie in upper and lower surfaces of a cylinder.
   _____
5. Sphere is a 3-D Shape. _____

1.1b Able to explore rotations of familiar 2-D Shapes intuitively.



Draw two vertical lines in a white paper.
(**By paper folding method**)

Draw a circle with radius 6cm in a chart. Then Cut the circle from the chart. Fold it into four equal parts and spread again. Draw/paste four pictures on the circle as shown in the figure.

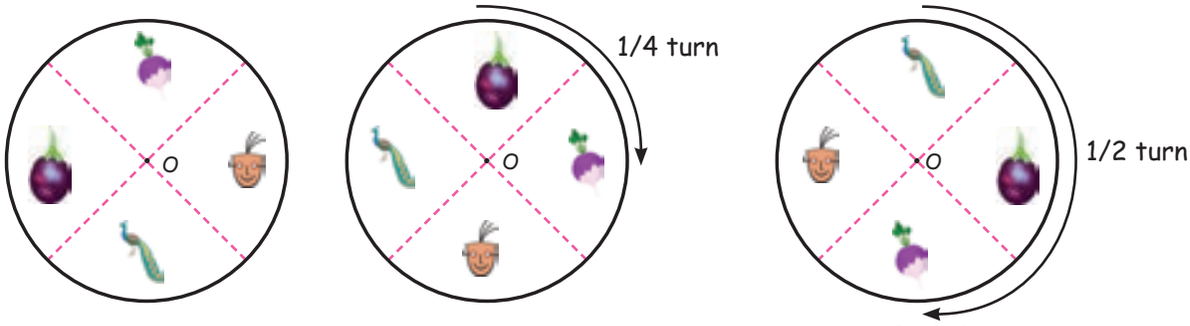


fig (i) fig (ii) fig (iii)

Fix/put the round chart on the white paper by using a pin in center.By rotating the chart we observe that two vertical lines and the center point will lie at the same point. Look at the changes occurred, when the chart is rotated.

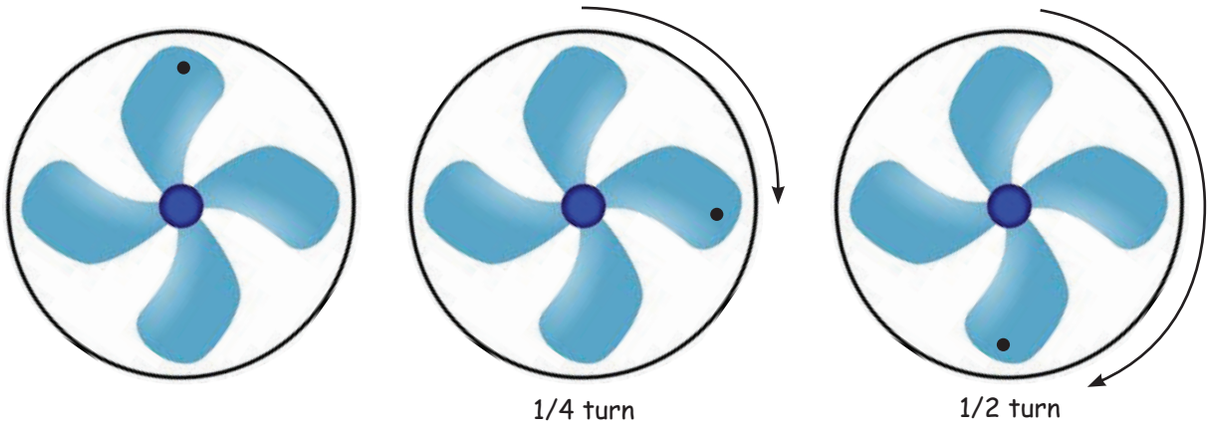
Turn the round chart as shown in the figure (ii). The picture in figure (i) is changed, as in figure (ii) This change is called as "rotation:. "O" is the "center". When we compare the figures (i) and (ii) the pictures are changed as one-fourth turn. When we rotate the chart as shown in the figure (iii) the pictures are changed as half-turn.

To Observe

- When we rotate, the shapes are rotated.
- The images are rotated depending on the point.
- The point is called as "Centre of Rotation"

Think it

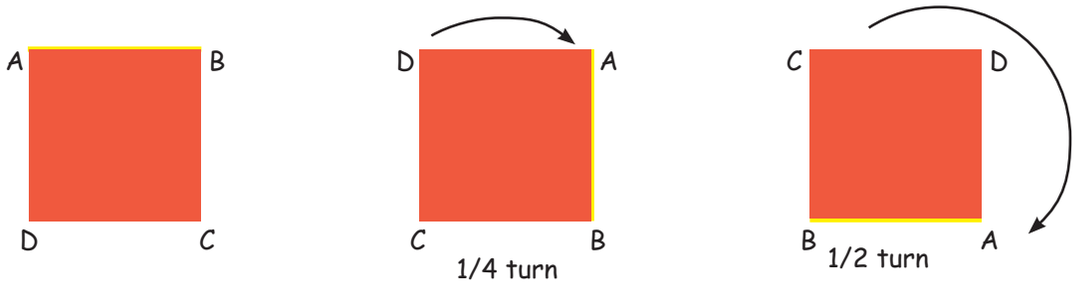
Is there any changes to the wings of the ventilater fan, after rotating one-fourth turn and half-turn.



1/4 turn 1/2 turn

Example

Let's see the rotation of the square.



Exercise 1.1b

1. Among the following shapes, find out which one would look the same after one-fourth turn. put a (✓) mark.

2. Among the following letters, find out which one would look same after half turn.

X, H, A, N, B, O, J, I, D, S

3. Find the numbers which will look same on a half-turn.

1 2 3 4 5 0 8

4. How the following numbers are changed after half-turn.

8 8 8 8 8 _____

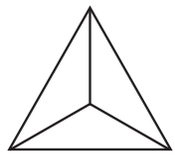
1 0 1 0 1 _____

1 1 1 1 1 _____

8 0 8 0 8 _____

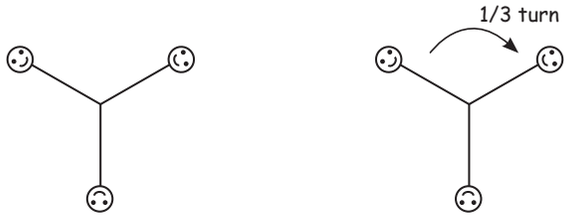
Project:

Prepare, a Gallery of 5 pictures after one fourth and half turns, and show it to your teacher. From the Gallery, prepare a table, that which looks the same after one fourth and half turn rotations.



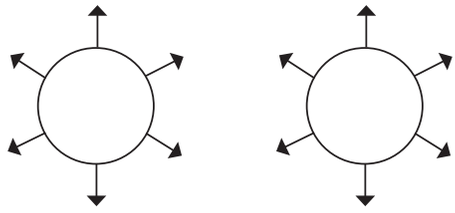
1/3 a turn:

Example: The following picture will look same on 1/3 of a turn.



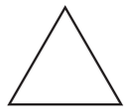
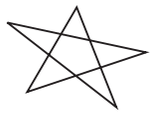
1/6 a turn:

Example: The following picture will look same on 1/6 of a turn.



Practice

1. Look at the following shapes. Draw that how will it be changed after 1/3 and 1/6 of a turn?

S. No	Shapes	1/3 a turn	1/6 a turn
1			
2			
3			

Project:

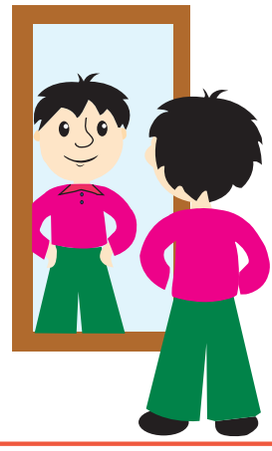
Prepare a Gallery by drawing the various numbers, pictures, Rangoli which will be occurred in 1/3 a turn, 1/6 a turn and show it to your teacher.

Think it

Find the only English alphabet which will not change its shape after $\frac{1}{4}$, $\frac{1}{2}$, 1/3, 1/6 a turn rotations?

1.1c Able to explore reflections of familiar 2D shapes intuitively.

Activity



While standing infront of a mirror, see your image.

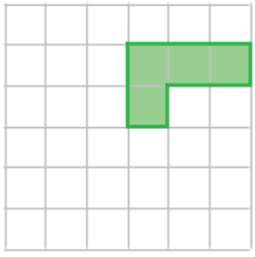
Observe your image in the mirror when moving back and coming front to the mirror again. What do you infer?

1. Your image in the mirror is _____ (bigger, smaller, same size)
2. When you go back, your image is moving _____ (backward, forward)
3. The distance between you and mirror and the distance between you and your image is _____ (equal, unequal)
4. When you come forward to the mirror, your images is moving _____ (forward, backward)

5 When you raise your right hand, the image in the mirror looks like, _____ hand is raising. (right, left)

6 When you raise your left hand, the image in the mirror looks like, _____ hand is raising. (right, left)

7 Look at this shape:

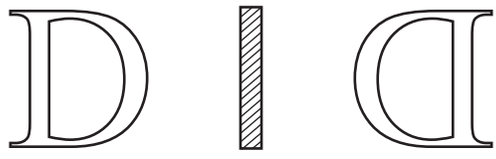


which image shows a reflection? ✓ the answer given below

A B C

Do it yourself:

- Take a mirror. Draw a line in the white paper by using a pencil and place it before the mirror.
- Take a paper draw 'D' and put it in front of the mirror. Observe the image of alphabet 'D' in the mirror.
- If we consider the alphabet 'D' as a "Object". 'ᗡ' is the "image". This event is called Reflection.



Now remove the mirror. The line drawn by pencil is called as the "reflection axis."

Observe:

- The object and image in the mirror are equal in size.
- The object and image are at equal distance from the reflection axis.
- If direction of the object is left to right then the direction of the image on the mirror will be from right to left.

Try yourself

Draw some of your favorite shapes and draw its reflection images on a chart and show it to your teacher.

Let's Enjoy it:

Take a paper in the shape of rectangle and fold it into two equal parts. Drop a thread in the ink-pot and drag it into the folded sheet. Now open and see the folded sheet. What do you see?

Are the designs on both the sides of the folded paper look alike?

Observe the changes of designs and express your ideas/results to your teacher.

1.1d Able to explore symmetry in familiar 3-D shapes like in alphabets intuitively.

For example, if we cut an apple into two equal halves, we observe that two parts are in symmetry.

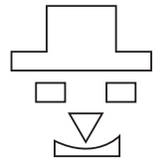
Symmetry is an important geometrical concept commonly seen in nature and is used in every field of our life. Artists, manufactures, designers, architects and others make use of the idea of symmetry.

Symmetry refers to the exact match in shape and size between two halves of an object.

When we fold a picture into two halves, and if both the halves match exactly then we say that the picture is symmetrical.

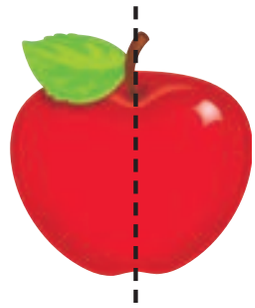




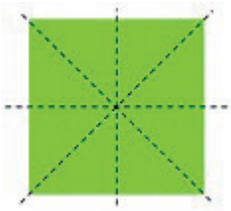


Line of symmetry:

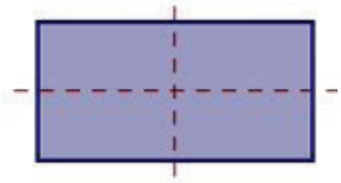
When a line divides a given figure into two equal halves and it matches exactly, then we say that the figure is symmetrical about the line. This line is called the line of symmetry or axis of symmetry.



Example



4 lines of symmetry: We can divide a square in 4 ways symmetrically.

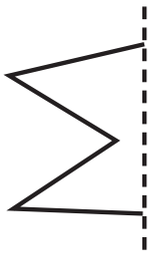


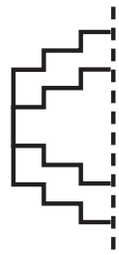
2 lines of symmetry: We can divide a rectangle in 2 ways symmetrically.

Project:

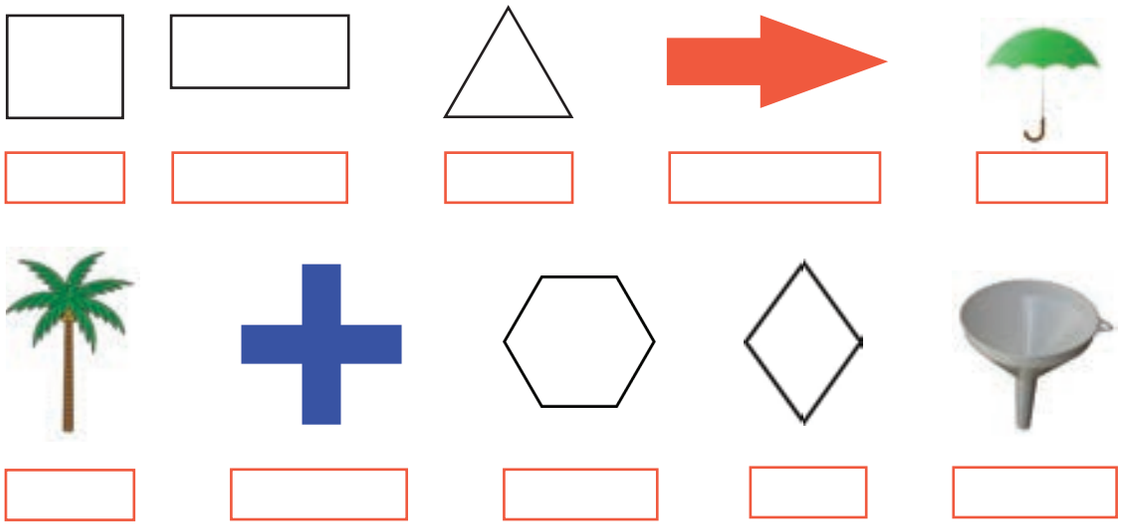
1. List out 2 symmetrical objects that you know.
2. Tick the picture which is symmetrical.

3. Complete the other half to make the given figure symmetric.





4 Draw the lines of symmetry for the following figures.



Think it

1. Can we divide the irregular solids, symmetrically? If no why?
2. Write the english alphabets that can't be divided symmetrically?
3. Write the english alphabets which are divided symmetrically?
4. Circle has many lines of symmetry. Is it true? why?
5. Find the three numbers between 1 and 9 that can be divided symmetrically.
6. Find two numbers between 1 and 9 with two lines of symmetry.

Do you know?

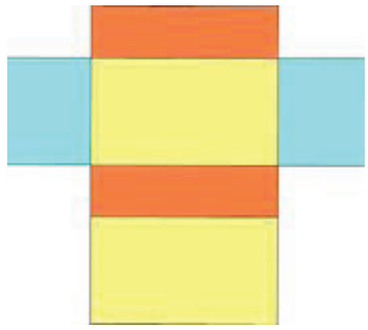
Tajmahal in Agra is a symmetrical monument.

Project:

Write down 26 English alphabets in a chart. Draw the lines of symmetry for the letters. Circle the remaining letters that are not symmetrical.

1.1e Able to make the shapes of cubes, cylinders and cones using nets especially designed for this purpose.

Nets of cuboid:



Open out a match box and layout on the white paper. Draw the base sides of the match box.

Teacher: Do you see, "How many sides are there in a match box?'

Student: yes sir. There are 6 sides.

Teacher: You are right. Can you assemble/create it after dissemble?

Student: Yes sir.

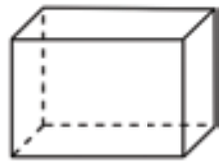
Teacher: Good

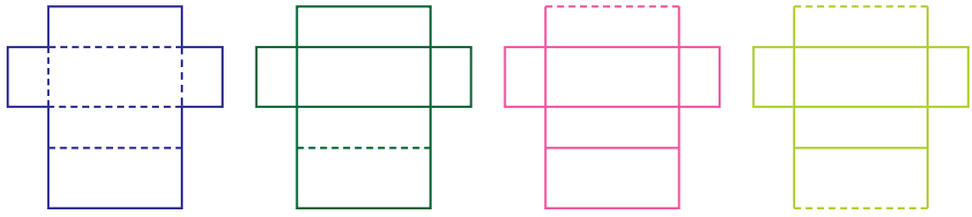
The net is a two dimensional shape and it always forms three-dimensional shape.

A net is a two dimensional figure which can be folded to form a three dimensional figure.

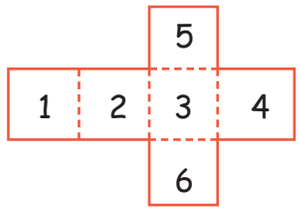
Try these

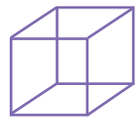
Find out which of these can be made into a box by folding along the dotted lines. Put a tick mark for the correct option.





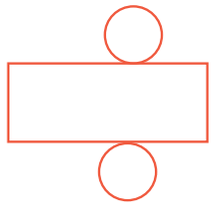
Net of a cube:

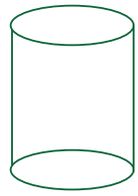




Fold squares along the dotted lines. Hence six equal squares from the net of a cube.

Net of a cylinder:



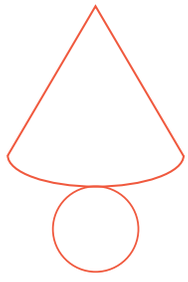


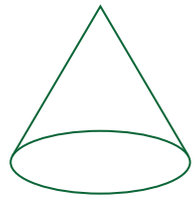
Consider a rectangle and two equal circles. This net thus formed is a cylinder.

Join the two edges of a rectangle breadth wise in such a way that the length of the rectangle forms the boundary of one circle at the top and other circle at the bottom.

The length of the rectangle forms the boundary of the circle. Both of them are equal in length.

Net of a cone:





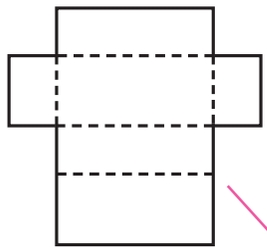
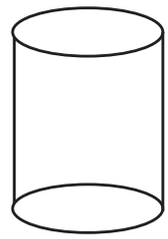
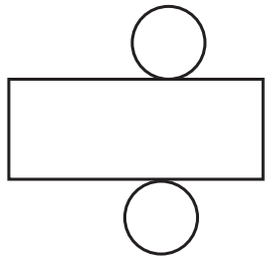
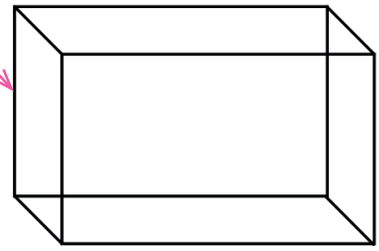
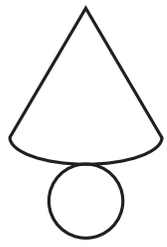
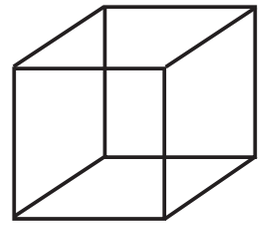
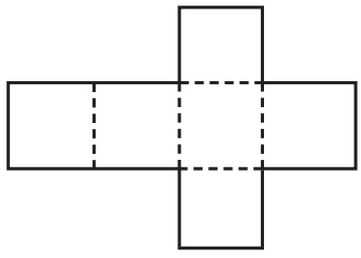
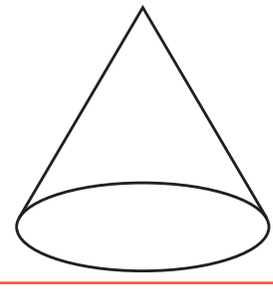
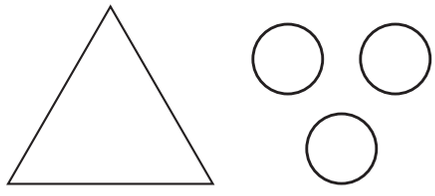
Look at the figure.

Join both the portion of a circle in such way that the arc of the circle falls on the boundary of the circle attached at the bottom.

The length of the arc forms the boundary of the circle. Both of them are equal in length.

Activity

Match the net with the shape you will get by folding.

1		
2		
3		
4		
5		
6	Two dimensions	Shape Cannot be formed.

1.2 Introduction of Angles

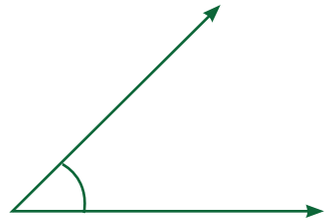
1.2a To get the feel of an angle through observation of objects and by paper folding:

Bridges, buildings, cell phone towers, wings of planes, bicycles, windows doors and things around us have angle in them.

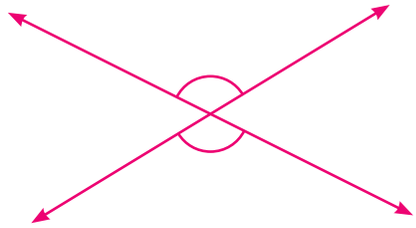



Angle:

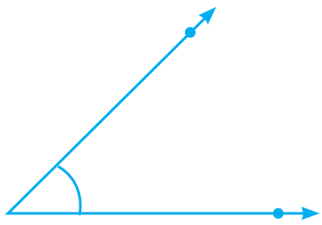
The figure formed by two rays/ with a common point is called an angle.



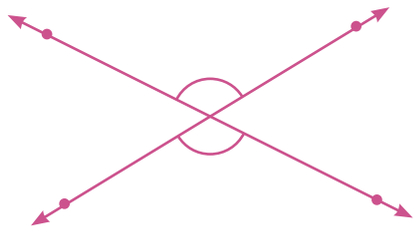
Angle formed by meeting of two rays



Angle formed by intersection of two rays.



Angle formed by meeting of two line segments

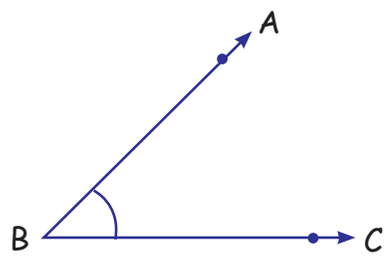


Angle formed by intersection of two line segments

Teacher : What does this the picture show?

Ramu : This picture shows an angle. Does angle have name sir?

Teacher : Yes. Angles have names. Can you see two line segments in this picture? Read the names of that.



Ramu : Sir, This angle has two line segments. They are BA and BC.

Teacher : Which is the common point of the two line segments?

Ramu : B is the common point.

Teacher : These two line segments make an angle. Common point B is vertex. BA&BC are arms of the angle.

Ramu : Then how can we name the angle in the picture?

Teacher : An angle is mentioned by three alphabet. The centre letter of the angle denotes the vertex.

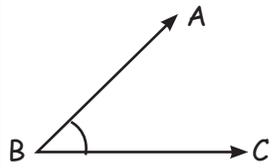
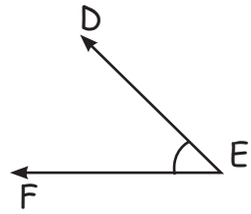
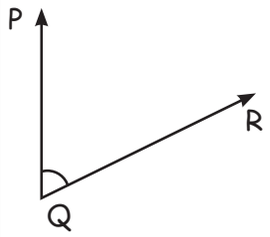
Ramu : Then, ABC is the name of the angle. Am I right sir?

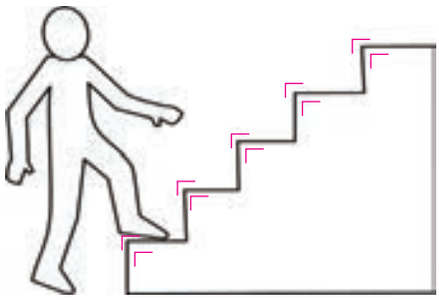
Teacher : Yes, We should mention the angle as angle ABC.

Ramu : Sir, can we write angle CBA instead of angle ABC.

Teacher : Surely. Angle ABC and Angle CBA are same. We use this symbol $\angle$ for angle.

So we can write angle ABC as $\angle$ ABC.

Picture for angle	Name of the angle	Vertex	Two arms of angle
	$\angle$ABC or $\angle$CBA	B	AB and BC
	?	?	?
	?	?	?



Angle between ground and stair case

Angle between ladder and ground

Angle between branches of a tree

Angle in a electric pole

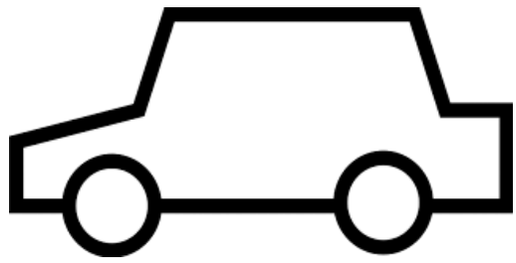
Angle in a bicycle

Angle in a house

Angle in a clock

Find:

In this picture, mark the angles formed inside and outside by using colour pencils.



project:

Collect some pictures having angles, and paste the same in a chart. Draw some angles by using pencil and show it to your teacher.

Activity

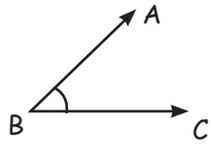
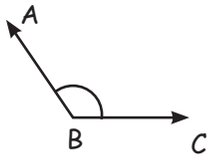
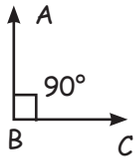
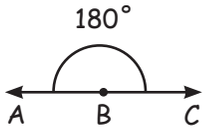
Look at the angles formed by your elbow and draw them as stick picture and show it to your teacher. Please share it with your friends and check.

Word and meaning:

The word angle came from the Greek word "Angilos". It means curved and not straight. Ankle is the place where knee and leg foot is joined.

1.2b Able to learn the names of angle like acute, obtuse and right angle:

We can create the various angles by combining the two wooden frames. Let us see the picture given below, from these shape we can find the types of angles.

Sl. No.	Picture	Type of angles	Definition
1		Acute angle	Greater than 0° less than 90°
2		Obtuse angle	Greater than 90° less than 180°
3		Right angle	Exactly 90°
4		Straight angle	Exactly 180°

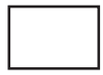
Write the angles generated in the following items. (Obtuse angle, acute angle, right angle)

_____

_____

_____

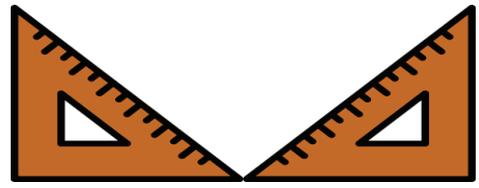
Try this



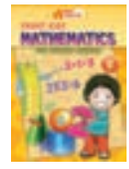
1.2c Able to identify right angles in the environment:

Ram is trying to cut a rectangular piece of wood, from a wooden board. Ram used a tool to cut sides of the rectangle. We call this device as set square.

We can see two set squares in a Geometry Box. It has 90° each.



Examples of right angles:



Do Yourself

Draw 5 objects with right angle.

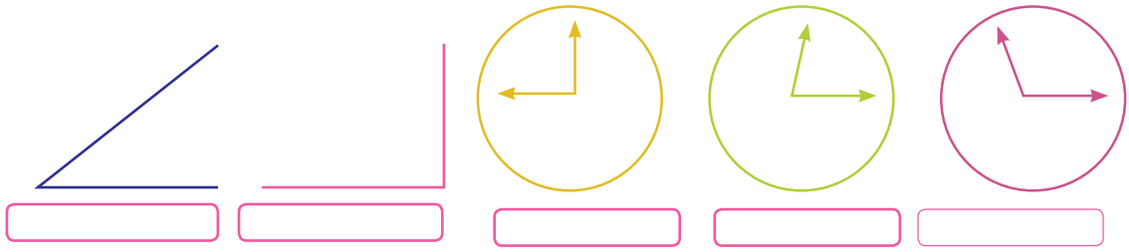
Classify the angles as acute, obtuse and right angle.

Try these

Classify the following angles

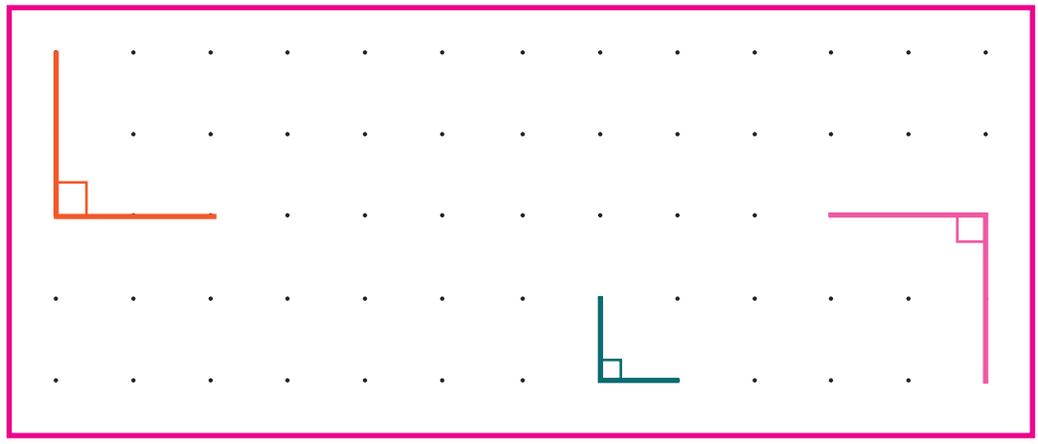
30°, 45°, 60°, 90°, 120°, 130°, 170°, 75°

Observe the following pictures and write the name of the angles in their box.



Activity 1

Draw right angle, acute angle and obtuse angle by tracing.



Project (Art and Craft)

1. Form the angles acute/obtuse/right angle by cutting/folding the papers and paste it in a chart.
2. Write the names of the flowers or animals (or) birds in English capital letter and mention the angles in it.

GIRAFFE

PEACOCK

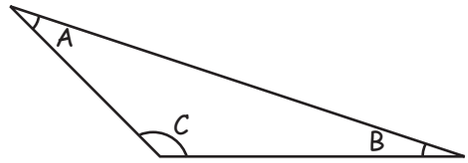
SUNFLOWER

Exercise 1.2

7354SZ

1. The angles below 90° are called as _____
2. The angles above 90° are alled as _____
3. By joining two right angles _____ angle is formed

4. The obtuse angle in ΔABC is _____



a. $\angle A$ **b.** $\angle B$ **c.** $\angle C$

5. Hand of a clock at 3.20 shows _____ angle.

6. In the following letters, which one forms the right angle?

_____

a. L **b.** K **c.** Z **d.** N

7. Circle the right angle.

a.  **b.**  **c.**  **d.** 

8. The angle shown in this picture is

a. more than 120° **b.** Less than 45°

c. more than 180° **d.** 90°

9. The angle formed by the nail cutter is _____

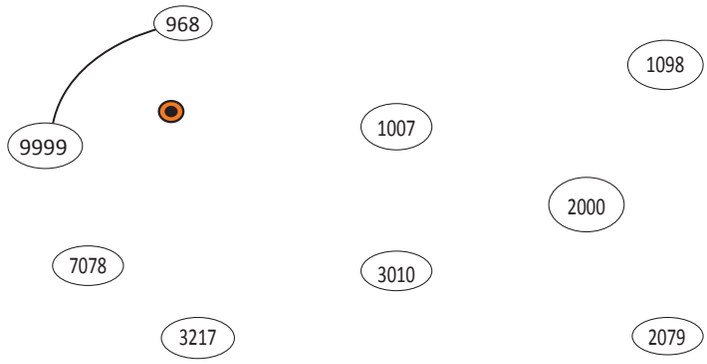
10. Name the angles formed when, the vessels are lifted by tongs in the kitchen.

IYQYHV

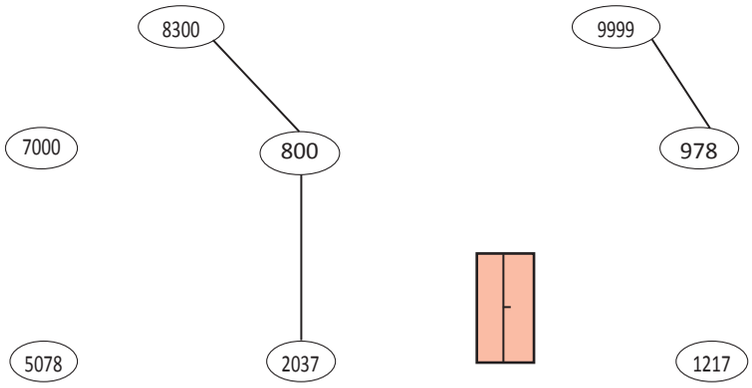
2.1 Numbers beyond 10000.

Recall:

1. Joint the numbers in descending order to get a picture.



2. Joint the numbers in ascending order to get a picture.



2.1 The uses of numbers beyond 10000 in real life situation.

Introduction

The price of television is ₹ 18, 500, the price of cell phone is ₹ 15,250 the price of LPG cylinder is ₹ 975, the price of wooden cot is ₹ 30,000 the price of car is ₹ 4,50,000 the price of bicycle is ₹ 5,250 and the price of pen is ₹ 115.

Tabulate the above data for price more than ₹ 10,000 and the price less than ₹ 10,000.

More than ₹ 10000	Less than ₹ 10000

We have learnt upto 10000 in the fourth standard, Now let us know more than 10000

Fill in the table from 10001 to 10100

10001	10002	10003	10004	10005	10006	10007	10008	10009	10010
10011							10018		
10021									
10031				10035					
10041						10047			
10051									
10061					10066				
10071									
10081		10083							
10091									10100

Activity 1

Add up to ten in the table and practice orally

10010	10020	10030	10040	10050	10060	10070	10080	10090	10100
10110									
10210								10290	
10310									
10410									
10510									
10610		10630							
10710						10770			
10810									
10910									

Exercise 2.1

a) 10,101 ; 10,102 ; 10103; ---------- ; ---------; ---------; ---------

b) 10220 ; 10230 ; ----------; ----------; ----------; 10270

c) 10920 ; ----------; ---------- --; ----------; 10960 ; ----------

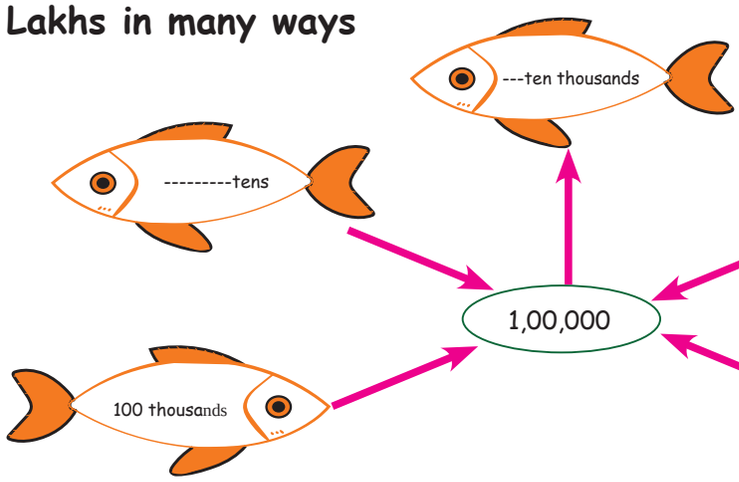
d) 11,101 ; 11,102 ; 11,103 ; ----------; ----------; ---------; -------

Let us Know

9999	9999+1	10000	Ten thousand
99999	99999+1	100000	Lakh
999999	999999+1	1000000	Ten lakhs
9999999	9999999+1	10000000	crore

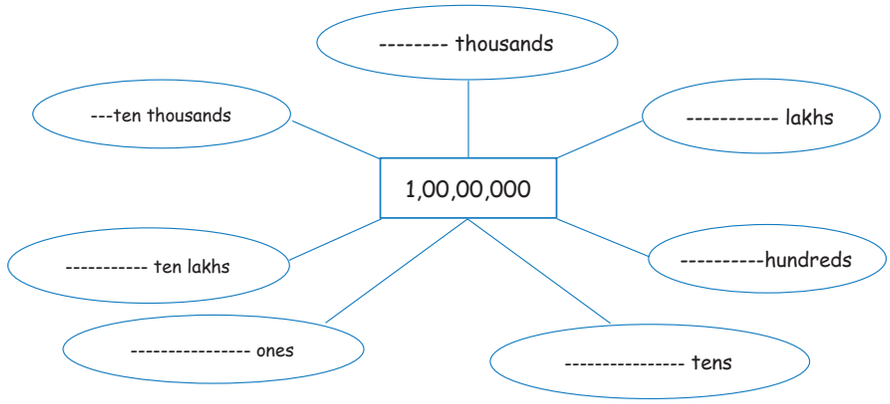
Activity

Lakhs in many ways



Do You Know?
The number of hundred zeroes after 1 is called **Googol**

Crore in many ways



2.2 Place value and comparison of numbers

2.2a Place value chart

Fill the correct numbers in the following table.

	Crore	Ten lakhs	lakhs	Ten thousands	thousands	hundreds	Ten's	ones
In one crore	1	10	100	1,000	10,000	1,00,000	10,00,000	1,00,00,000
In ten lakhs		1						
In one lakh			1					
In ten thousand				1				
In one thousand					1			

Let us learn to use Abacus

Example:1

The abacus shows the number: 7,341.

Number name: Seven thousand three hundred and forty one.

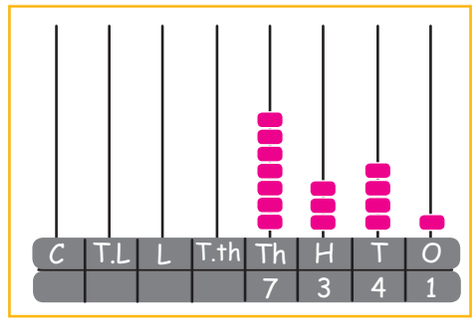
Expanded form: 7 thousands + 3 hundreds + 4 ten +one

= 7000+300 +40 + 1

= 7 x 1000 + 3 x 100 + 4 x 10 + 1

Try this

Add 4 tens 2 thousands to this number 345678.



Activity: 1

The above Abacus shows the number 34,284

Number name: Thirty four thousand two hundred and eighty four.

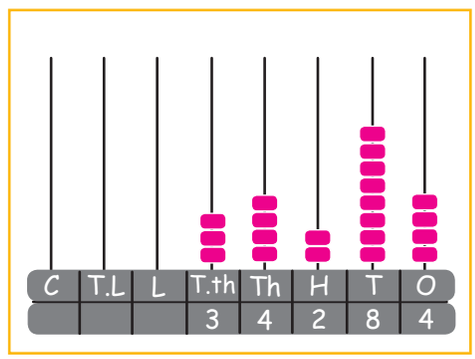
Expanded form: 3 Ten thousands + 4 thousands +2 hundreds + 8 tens + 4 ones.

= 30,000 + -------- + 200 + ----- + ---

= 3 x 10000 + 4 x ------- + 2 x 100+ 8 x ------ + --- x 1

Abacus:

Abacus is a counting device that consists of a frame holding rods on which a specific number of beads are free to move, each rod denotes place values such as units, tens, hundreds, etc...



Activity: 2

Number:----------

Number name: ----------

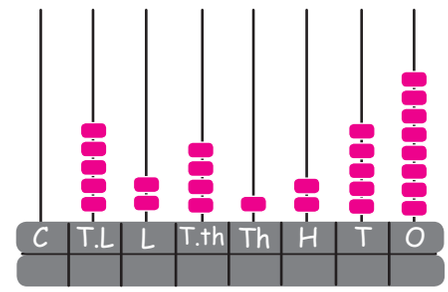
Expanded form: 5 ten lakhs + -----lakhs+ ---- ten thousands +1 ---

---------+ 2 ---------- +5 tens + -----ones

= 5000000 + ---------- + 40000 + ----------+ 200 + 50 + 8.

Try this

How many thousands are there in 3,45,789?



Example:2

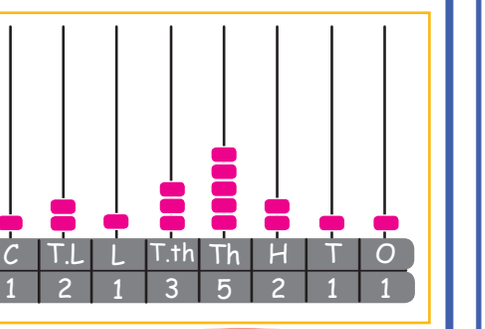
The Abacus shows the number 1, 21, 35, 211

In words. One crore twenty one lakhs thirty five thousand two hundred and eleven.

Expanded form: 1 crore + 2 ten lakhs + 1 lakh + 3 ten thousands + 5 thousands + 2 hundreds +1 ten + 1 one.

= 1,00,00,000 + 20,00,000 + 1,00,000 + 30,000 +5000 +200+ 10 +1

= 1x1,00,00,000 + 2x10,00,000 + 1x100,000 +3x 10000 +5x 1000+ 2x 100+ 1x10+1



Find it yourself.

Find the sum of the place values of 2 7226382

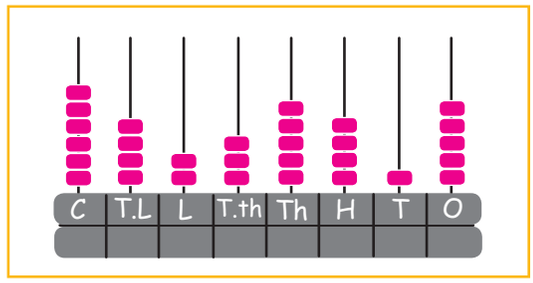
Do you know?

Name the number which has 7 zeros after one.

Activity: 3

Given number: ----------

Number name: ----------



Expanded form: 6 crores +
-----Tenlakhs + ---- Lakhs+ 3
----------+ 5 Thousands + ---------- + 1Ten + 5 ones.

= 6,00,00,000 + 40,00,000 + ---------- + ---------- +
5000 + 400 + ---------- + 5

= 6 x ---------- + 4 x ---------- + 2 x 100,000+ 3 x
10000 + 5 x ---------- + ---------- x 100 + 1 x 10
+ ----------x 1

Example:3

Write the place value of each digit for the given numbers.

For example: 4 34, 56 ,789

C	TL	L	T.tho	THO	H	T	O
4	3	4	5	6	7	8	9

The place value of 9 is 9 x 1 = 9

The place value of 8 is 8 x 10 = 80

The place value of 7 is 7 x 100 = 700

The place value of 6 is 6 x 1000 = 6000

The place value of 5 is 5 x 10000 = 50000

The place value of 4 is 4 x 100000 = 400000

The place value of 3 is 3 x 1000000 = 3000000

The place value of 4 is 4 x 10000000 = 40000000

Let us Know

100 lakhs make 1 crore

Activity

Write the place value of 7 and 1 for the given numbers.

a. 81,70,453 **b.** 3,46,710 **c.** 1,87,13,971

Exercise 2.2a

1. In 15,478

   a. The place value of 7 is_____

   b. The place value of 4 is_____

   c. The place value of 1 is_____

2. Fill the table with the place value for the following numbers.

Place value	crore	lakhs		thousands		ones		
Numbers	1,00,00,000	10,00,000	1,00,000	10000	1000	100	10	1
23,45,172		2	3	4	5	1	7	2
84,701								
2,01,784								
9,04,704			9	0	4	7	0	4
2,07,91,132								
10,07,000								

3. Find the difference between greatest 7 – Digit number and smallest 6-digit number.

2.2b Importance of commas or periods.

Numbers having 4 or more digits can be read quickly and easily by putting them into groups using commas.

Crores		Lakhs		Thousands		Ones		
T C	C	T L	L	T.TH	Th	H	T	O

In the place value system, ones, tens and hundreds form the first group under "ones" period. Thousands and ten thousands form second group under "thousands" period, lakhs and ten lakhs form the third group under "lakhs" period and crores and ten crores form the fourth group under "crores" period. Each group is seperated by a comma.

1. 99,15,797 2. 2,30,145 3. 1,34,19,922

Exercise 2.2b

1. Read the following numbers by placing the commas at appropriate periods and write their number names.

   a. 15731997 **b.** 341964 **c.** 29121972 **d.** 347810

2. Write the place value of 5 in the following numbers.

   a. 15731997 **b.** 341964 **c.** 29121972 **d.** 347810

3. Write the following in standard notation.

   a. 30000 + 3000 + 300 + 30 +3

   b. 200000 + 7000 +7

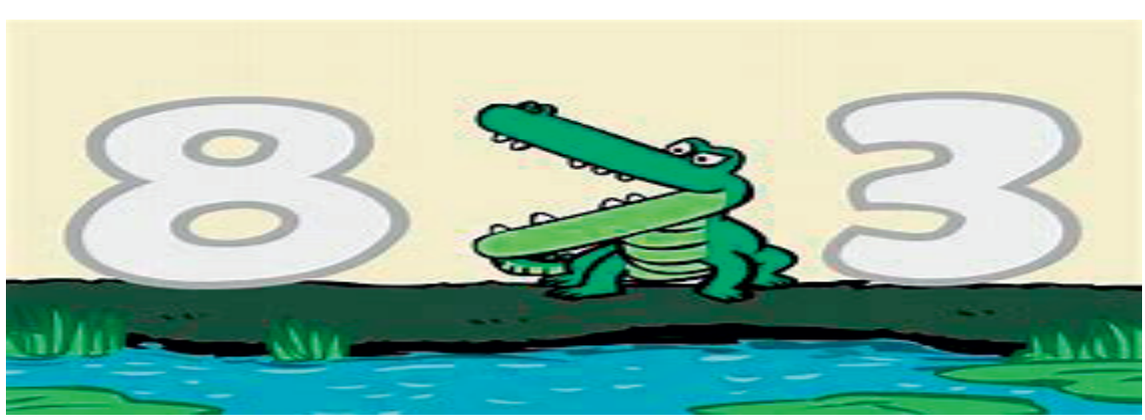
   c. 8000000 + 70000 + 3000 +30 +5

   d. 4000000 + 400 + 4.

4. Write the following numbers in expanded from.

   a. 63,570 **b.** 36,01,478 **c.** 1,45,70,004 **d.** 28,48,387

2.3 Comparison of Numbers.



We use symbols >, < and = to compare any two numbers

Which is smaller **20344** or **3241**?

Number with more number of digits is a **larger number.**

Number with less number of digits is a **smaller number**.

3241	**<**	**20344**
4 digits		5 digits

Which is **greater 73652** or **56372** ?

Here, both the numbers have 5- digits. So the highest digit is to be compared to find the greater number.

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

T.TH	TH	H	T	O
5	6	3	7	2

Here 7 ten thousands is **greater** than. 5 ten thousands.

Hence,

73652 > 56372

We read it as, seventy three thousand six hundred and fifty two is **Greater than** fifty six thousand three hundred and seventy two.

Which is **smaller 54349** or **53449** ?

Since both are five digit numbers and the digits in the ten thousands place are equal, the numbers in the thousands place should be compared.

T.Th	TH	H	T	O
5	4	3	4	9

T.Th	TH	H	T	O
5	3	4	4	9

When we compare the thousands place, the first number has **4** Thousands and seconds one has **3** Thousand so the second number is the **smaller** number.

Hence.,

53449 < 54349

We read it as fifty three thousand four hundred and forty nine is less than fifty four thousand three hundred and forty nine.

For example:

a) 54,689 **<** 54,869

b) 75,432 **>** 75,412

c) 45,327 **<** 45,321

To think

Find out which digits are compared in each example?

Try this

From the pairs of numbers given below compare them by using < , > and = signs.

1. 3,002 ☐ 8,002

2. 43,731 ☐ 44,371

3. 43,115 ☐ 43511

5. 13,435 ☐ 13,4753

Write the smallest and greatest five digit numbers using the given digits only once.

Example

1. 1,2,3,4,5

Smallest number : 12,345

Greatest number : 54,321

2. 7,6,9,4,8

Smallest number : 46,789

Greatest number : 98,764

Activity

1. **Form the smallest and greatest five digit numbers using the given digits once.**

   a) 7, 1, 0, 5, 4

   b) 3, 4, 7, 0, 9

   c) 9, 7, 1, 6, 4

   d) 4, 5, 9, 6, 7

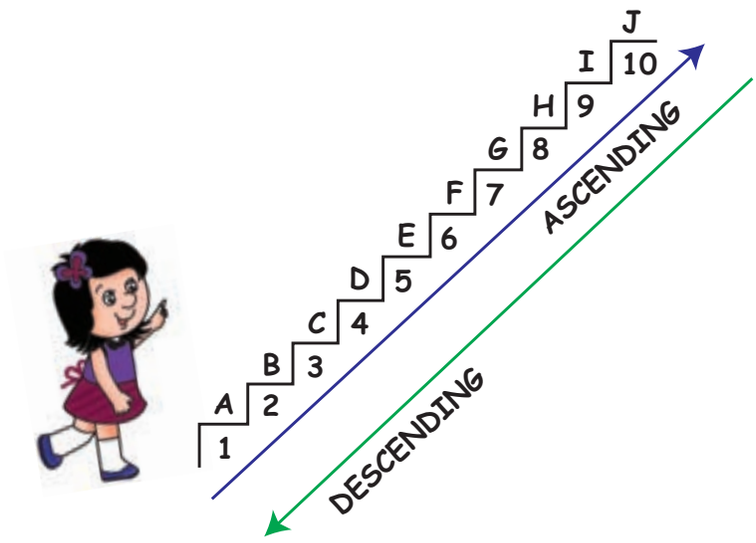
2. **Write the smallest numbers in the fruit and the greatest numbers in the flower.**

   a) 45678, 145, 7829

   b) 23, 8873, 88738, 883




2.3 Ascending and descending order of numbers.



Ascending order of numbers is arranging the numbers from the smallest to the greatest.

Example:1

Arrange the given numbers in ascending number

413, 43, 986, 38490, 8490

Answer: Ascending order:

43, 413, 986, 8490, 38490

Descending order of numbers is arranging the numbers from the greatest to the smallest.

Example:2

Arrange the given numbers in descending order

195, 4090, 81343, 95, 9040

Answer: Descending order:

81343, 9040, 4090, 195, 95

Try this

1. Arrange the following numbers in the ascending order and descending order.

   33,270; 1,078; 137; 27,935

   44, 918; 32,113; 23, 112; 42,231

   75,343; 30,475; 43,452; 13,055

   733; 34,946; 35,945; 23,745.

Exercise 2.3

I. Write the number name:

a. 11000 — Eleven thousand

b. 34000 — ----------

c. 100000 — ----------

d. 98,364 — Ninety eight thousand three hundred and sixty four.

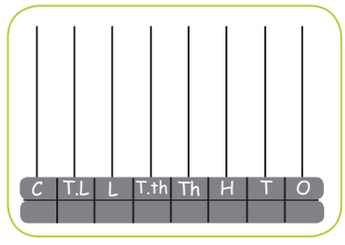
e. 37,689 — ----------

f. 46,763 — Forty six thousand seven hundred and sixty three

g. 4,00,000 — ----------

h. 12,00,000 — ----------

II. Write the following values in abacus.



1. 3 Tens, 7 crores, 60 lakhs, 7lakhs 4 tens and 7 ones.
2. Find the place value of 7 and 4 of this numbers 34578910
3. Write any one number with 6 thousands with 9 tens and 3 ones.
4. Write in numerals
   a. One crore forty thousand and four.
   b. Sixty four lakhs and three

5 Write in words (Figure 1).

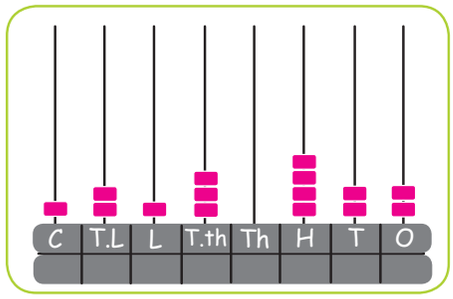


Figure 1

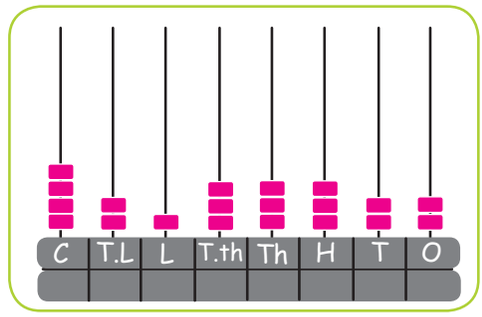


Figure 2

6 How many lakhs and hundreds are there in the Abacus (Figure 2)?

7 Find the sum of greatest 4-digit number and smallest 5-digit numbers.

8 Write the following in ascending and descending orders.

a. 33,058 40,978 97,879 81,421 90,470 47,224

b. 99,999 11,111 22,222 33,333 44,444 66,666

9 Write in standard form: 7 lakhs+ 5 thousands + 4tens +3ones

10 Add 5 thousands and 3 hundreds to this number 1, 34,510

11 Subtract smallest 6-digit numbers from greatest 7 – digit numbers.

2.4 Numbers and Operations

Appreciate the role of place value in addition, subtraction and multiplication algorithm

2.4a Addition

Introduction

"Ananthan come fast" Ananthan's mother shouted. "Bus would come earlier".

"I am here mummy, I am ready" he said. The whole family was very busy for ananthan's sister marriage. They have to buy new clothes for their relatives and family members.

They finished their purchase and returned back home.

Ananthan asked his father 'how much did you spend for our dresses?

His father said, "Cost of dresses for gents is ₹ 25050, for ladies is ₹ 47025 and for kids is ₹ 7125, and for bride and groom dresses is ₹ 17500, Now you can tell the total amount.

Ananthan took a paper and pen, he wrote all the amounts one by one according to their place values.

For gents	-	₹ 25050	
For ladies	-	₹ 47025	
Kids	-	₹ 7125	+
Groom and bride	-	₹ 17500	
		₹ 96700	

Check whether, the above total amount is correct or not.

Yes, ananthan is correct, see the cost of kids, ₹ 7125, There is a empty place in ten thousand's place. So Ananthan wrote down the numbers according to the place value. We learnt about place values of the numbers. Now we are going to use the method of adding different values of numbers.Add the following numbers and write down one by one.

137462 + 4005 + 38 + 56734.

L	T.Th	Th	H	T	O
1	3	7	4	6	2
		4	0	0	5
				3	8
	5	6	7	3	4
1	9	8	2	3	9

Step1: Start by adding the ones. We have 19 ones in ones place.s

Step2: We must regrouping 19 ones to 1 ten and 9 ones.

Step3: Now we can put 1 ten with ten and write 9 in the ones place.

Simillarly we have to do the hundred, thousand … and so on.

Arrange all the given numbers according to their place value .

We can do all the addition problems in this manner.

Note:

When write the numbers, we can avoid mistakes by starting from the right side, that is from the units place.

Exercise 2.4a

1. Find the sum.

	6	8	7	5
		6	3	7
+	5	4	3	0	0
				5	4

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

2. Add the following

a. 19732 + 24105 + 525 + 48

b. 241605 + 34788 + 5003 + 2052

c. 1000 + 250787 + 3574 + 43

d. 7 + 65 + 324 + 52342.

3. In a town panchayat, population of 5 villages are 980, 3254, 4125, 687and 6786. what is the total population?

4. Ramu bought some home needs. The price list of which is given below. What is the total cost ?

Fan	- ₹ 3,250
Fridge	- ₹ 26,437
Television	- ₹ 18,520
Iron box	- ₹ 940
Cot	- ₹ 15,520

5. In a vegetable market, one day sales of Brinjals is ₹ 4500, Tomato is ₹ 7800, Onion is ₹ 26,500, Potato is ₹ 7825 and Beetroot is ₹ 825, What is the total amount of sales on that day?

2.4b Subtraction

We have already learnt how to add the numbers and to write down the numbers with their corresponding place values. In the same manner we have to do subtraction problem .The operation or process of finding the difference between two numbers or quantities, denoted by a minus sign (-).

The result of subtracting one number from another is called the **Difference**

Answer

L	TTH	TH	H	T	O
6	7	5	4	3	2
	3	2	4	5	6
6	4	2	9	7	6

Example

Mathan is working in a construction company. He is getting ₹ 57,385 salary per month. He spent ₹ 48,500 for his family every month. how much does he save per month?

Answer:

			₹
Mathan's Salary	=		57,385
His expenditure	=	-	48,500
His savings			**8,885**

Exercise 2.4b

Subtract

a. 1) 78,347 (-) 59,475 = ____

2) 67,056 (-) 3,748 = ____

3) 1,58,376 (-) 47,978 = ____

4) 89,700 (-) 4,538 = ____

b. Rahul has 3289 stamps. Ravi has 4021 stamps. How many stamps does Ravi have more than Rahul?

c. **Create the story problem by using the pictures given below:**

Figure 1

Figure 2

2.4c Multiplication

Remember the multiplication which you learned in last class.
Now we are going to know the place values under multiplication

Step1: Multiply by the number in the ones place .

Step2: Put a zero below in the one place to hold its place.

Step3: Multiply by the number in the tens place.

Step4: Add them up

35 students are studying in class 5. The The cost of uniform for one student is ₹ 350. What is is the total cost of uniforms for 35 students?

Here, Numbers in the unit place are 5 and 0, first we have to multiply these two numbers.

350 x 35

1750

1050

12250

See the following steps:

Step: 1

O O
350 x 35
0

Step: 2

2
HT O
350 x 35
50

Step: 3

2
H O
350 x 35
1750

Step: 4

350 x 35
1750
0

Step: 5

O T
350 x 35
1750
00

Step: 6

1
HT T
350 x 35
1750
500

Step: 7

1
H T
350 x 35

1750
+ 10500
12250

1750 + 10500 = 12250

2.4d Multiply the three digit numbers by two digit numbers

Example 1

Raveena has planted 15 rows of coconut trees in her garden Each row has 112 trees. How many coconut trees were planyed in total?

Using multiply method

Number of rows planted by Raveena = 15

Number of trees in one row = 112

Total number of coconut trees in her garden = 112X15

= 1680

112x 15
560
+ 1120
1680

Example 2

One kg of Apple is sold by Bathri for Rs 165.
Find the total cost of 12 Kgs of Apple?

Cost of 1Kg of Apple = Rs 165.

Total cost of 12 Kgs of Apple = 165 × 12

= Rs 1980

165x 12
330
+ 1650
1980

Exercise 2.4c

1. Multiply:

a. 473 x 48 **b.** 4052 x 19 **c.** 876 x 25 **d.** 854 x 21
e. 417 x 39 **f.** 870 x 28

2. Answer the following :

1. In a Basket there are 55 mangoes. Cost of one mango is ₹ 15. What is the total cost of 55 mangoes?
2. In a Bus, there are 55 passengers. Each of them get tickets of ₹ 25. What is the amount is collected by the conductor?
3. A classroom has 23 benches, each bench cost is ₹ 725. What is the total cost for 23 branches?
4. In a village there are 675 people are living. Each person uses 25 L of water daily. How much water is need for the village everyday?
5. In a building, there are 26 rooms, cost of painting for one room is ₹ 950 What is the total cost of painting the building?

2.4e Division Algorithm

Mr. Sabari lives in kovalur village. He is a farmer and has a cow. He gets milk from it and sells the milk to 8 houses daily. His cow gives 8 L of milk daily. So it gives 240 L of milk for 30 days.

If so, how much of milk is bought by each house. In a month Mr. Sabari shares 240 L of milk to each 8 houses

So we have to split 240 in 8 parts.

240 - **Numerator**

8 - **Denominator**

We can find this by long division (or) standard division algorithm.

Step: 1

$$\overline{)\,2\ 4\ 0}$$

240 is whole part
We are going to divide 240, Here 240 is the **dividend**

Step: 2

$$8\overline{)\,2\ 4\ 0}$$

We have to split 240 into 8 equal parts, Here 8 is the **divisor**

Step: 3

$$\begin{array}{r} 3 \\ 8\overline{)\,2\ 4\ 0} \\ 2\ 4 \\ \hline \end{array}$$

There are three 8's in 24.
(8 + 8 + 8 = 24)
Write 3 on the top of the line.
3 x 8 = 24
Write the product 24 below the 24, starting from the left side.

Step: 4

$$\begin{array}{r} 3\ 0 \\ 8\overline{)\,2\ 4\ 0} \\ -2\ 4\ \downarrow \\ \hline 0 \end{array}$$

Next write down '0'. We Cant divide 0 by 8

So, write '0' on the top near 3.

So 30 is quotient

It means, each house bought 30 L in a month.

Note:

Generally, when we are doing addition subtraction and multiplication , we are starting from units place.
But in division , We do in opposite manner.
First choose the highest digit.
Here 2 is smaller than 8 so take 2 from Ten's place. Now we have 24.

2. Find Quotient and Remainder 53675 ÷ 8

```
      6 7 0 9
   ┌──────────
 8 |  5 3 6 7 5
     -4 8 ↓
     ------
        5 6
       -5 6
       ----
          0 7 5
         -7 2
         ----
            3
```

Dividend	=	**53675**
Divisor	=	**8**
Quotient	=	**6709**
Remainder	=	**3**

Note:

Magic Math's

Dividend ⇨ Divisor × quotient + reminder

Exercise 2.4e

1. Find quotient and remainder

1. 5732 ÷ 9
2. 47345 ÷ 5
3. 3032 ÷ 7
4. 43251 ÷ 10
5. 2532 ÷ 4

2. Answer the following:

1. In a town there are 3057 families.
   The town panchayat plans to split the town into 3 wards equally. How many families will be there in one ward?
2. A water Board shares 28, 049 liters daily to 7 lorries. How much of water is given to each lorry?
3. A company gives ₹ 93,300 as salary for 6 workers. Find the salary of one worker?

2.4f Divide 4 digits by 2 digits

We learnt how to divide a single digit in last class. Now we are going to learn how to divide a 4 digit number by a 2 digit number.

On that day 5th std students are very excited, as the bus came to school for educational tour. The class teacher asked the students to get in the bus. Students got into the bus happily. The bus reached Arignar Anna Botanical garden. The class teacher paid ₹ 1530 as Entrance fee for all the students. If there are 34 students, what is the entrance fee for one student?

So, we have to divide the total amount ₹ 1530 by 34.

1530 ÷ 34

Step: 1

	Th	H	T	U
34)	1	5	3	0

When dividing by 2 digit number, we have to choose first two digit from the dividend.

34) 15

But 15 is smaller than 34,

So choose 3 from tens place with 15, we get 153

34) 153

Step: 2

			4	
34)	1	5	3	0
	-1	3	6	
		1	7	

Now divide 153 by 34

Calculate how many 34's are there in 153.

4 X 34 = 136.

Step: 3

			4	5
34)	1	5	3	0
	-1	3	6	↓
		1	7	0
	-1	7	0	
			0	

Next write down the '0' in the unit place

We have 170.

Calculate how many 34's are there in 170

5 X 34 = 170

Quotient = 45,
Remainder = 0

Therefore, the entrance fee for one student is ₹ 45

Divide and find the quotient and Remainder.

Example 1: 4 9 2 5 ÷ 25

Step: 1

```
      1
25 | 4 9 2 5
   -2 5
   ------
     2 4
```

We know that when divide by 2 digit number have to choose first 2 digit from the dividend

Here divide 49 by 25

```
25 | 49
```

25 is one time in 49

1 x25 = 25

Step: 2

```
      1
25 | 4 9 2 5
   -2 5 ↓
   ------
     2 4 2
```

Subtract 25 from 49 we get 24,
Next write down 2 from the ten's place

Step: 3

```
      1 9
25 | 4 9 2 5
   -2 5 ↓   |
   ------   |
     2 4 2  |
   -2 2 5   ↓
   ---------
       1 7 5
```

Divide 242 by 25
Calculate how many 25's in 242
9 X 25 = 225
Subtract 225 from 242 we get 175.

Step: 4

```
      1 9 7
25 | 4 9 2 5
   -2 5 ↓   |
   ------   |
     2 4 2  |
   -2 2 5   ↓
   ---------
       1 7 5
     - 1 7 5
     -------
           0
```

Next write down 5 from unit place.
Now we have 175
Calculate how many 25's in 175
7 X 25 = 175

Quotient = 197,
Remainder = 0

Example 2: Divide 4327 by 18 and find quotient and remainder

Solution :

```
        2 4 0
    ┌─────────
18  │ 4 3 2 7
    │-3 6 ↓ |
    ├─────────
      7 2   |
    - 7 2   ↓
    ─────────
          7
```

Dividend	=	**4327**
Divisor	=	**18**
Quotient	=	**240**
Remainder	=	**7**

Example 3:

A car factory produces 3750 cars per month (30 days). Find the number of cars produced per day.

Divide 3750 by 30 days.

3750 ÷ 30

Step: 1

```
        1
    ┌─────────
30  │ 3 7 5 0
    │-3 0
    ├─────
      7
```

Choose first 2 digits. 37 from the dividend
Divide 37 by 30
Calculate how many 30's in 37
1 X 30 = 30

Step: 2

```
        1
    ┌─────────
30  │ 3 7 5 0
    │-3 0 ↓
    ├─────────
      7 5
```

subtract30 from 37, we get 7
Next down the 5 in ten's place

Step: 3

```
        1 2
    ┌─────────
30  │ 3 7 5 0
    │-3 0 ↓
    ├─────────
      7 5
    - 6 0
    ─────
      1 5
```

Divide 75 by 30.
Calculate how many 30's in 75
2 X 30 = 60
Subtract 60 from 75 we get 15

Step: 4

```
      1 2 5
   ┌─────────
25 │ 3 7 5 0
   - 3 0 ↓
   ─────────
     7 5
   - 6 0 ↓
   ─────────
     1 5 0
   - 1 5 0
   ─────────
         0
```

Next write down the '0' from unit place.
In 150, calculate how many 30's
5 X 30 = 150

Quotient = 125,
Remainder = 0

The remainder is zero. The remainder could not be zero for all problems.

2E5DID

Exercise 2.4f

I. Answer the following questions:

1. A cement factory produces 37500 bags of cements in a month (30 days). How many cement bags are produced in one day?
2. 8075 mangoes are harvested in a mango garden. 95 mangoes are packed in a bag. How many mango bags will be there?
3. In a street there are 25 families. They need 1625 liters of water per day. How much of water is needed for a family?
4. In a tempo van 6750 bananas were loaded. Those bananas were arranged in 15 baskets equally. Then how many bananas were arranged in one basket?

II. Divide the following

1. 4525 ÷ 15
2. 3448 ÷ 24
3. 7342 ÷ 18
4. 3626 ÷ 37
5. 4872 ÷ 56

3.1 Patterns in Shapes.

EAR889

Observe the image below. How the boats are designed?

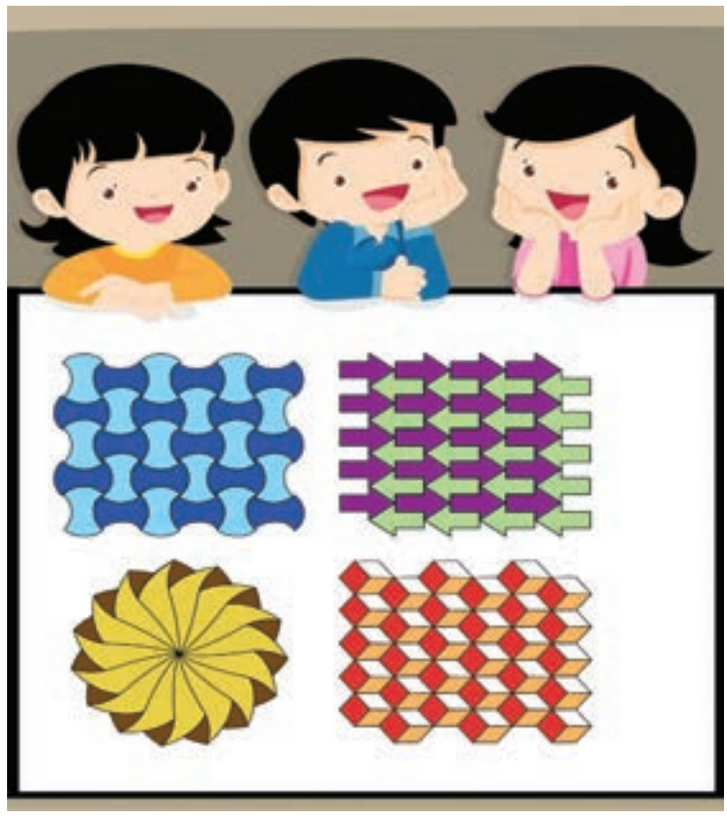
Patterns are present everywhere around us.Patterns are regularly repeated arrangement of colours ,shapes,designs ,lines etc. on a surface

Examples

Observe the below patterns of colours and shapes.

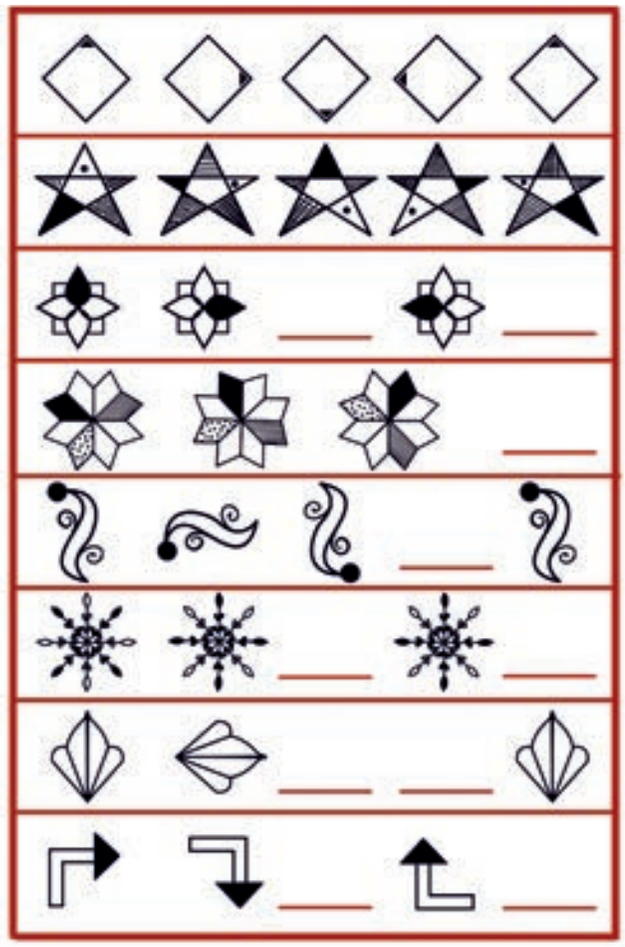
Examples

Observe the below patterns of shapes.



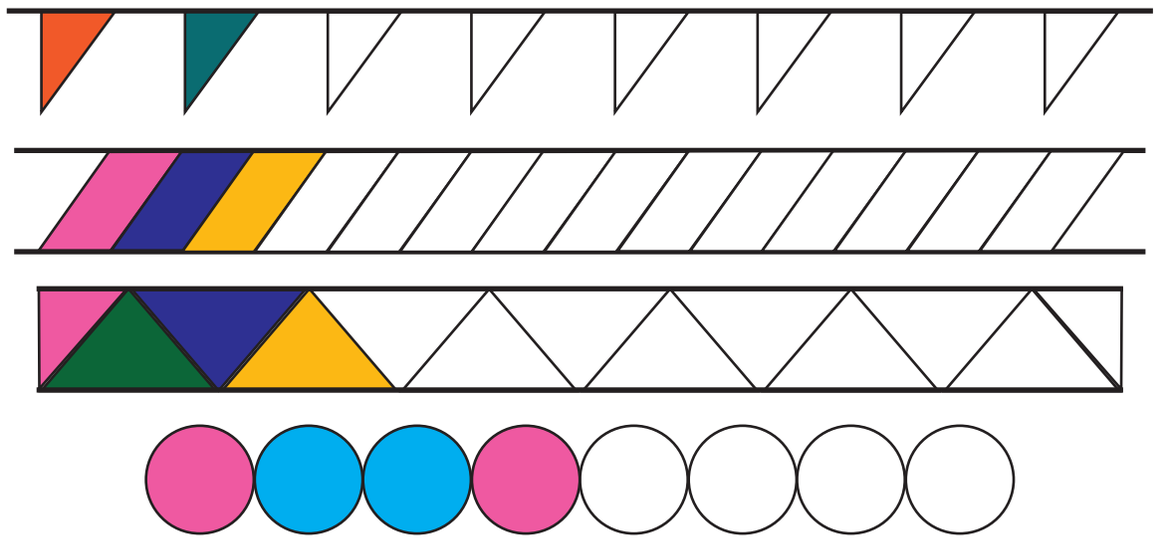
Exercise

Fill in the blanks:



Activity

I. Continue the colours as shown in starting level



3.2

Patterns in Numbers

3.2a To Identify patterns in square numbers and triangular numbers.

Square numbers

Introduction:

For finding the square of a number we multiply the number by itself. A square number is always positive. The numbers like 4, 9, 25... can be expressed as the product of a number and itself.

$1 \times 1 = 1^2 = 1$

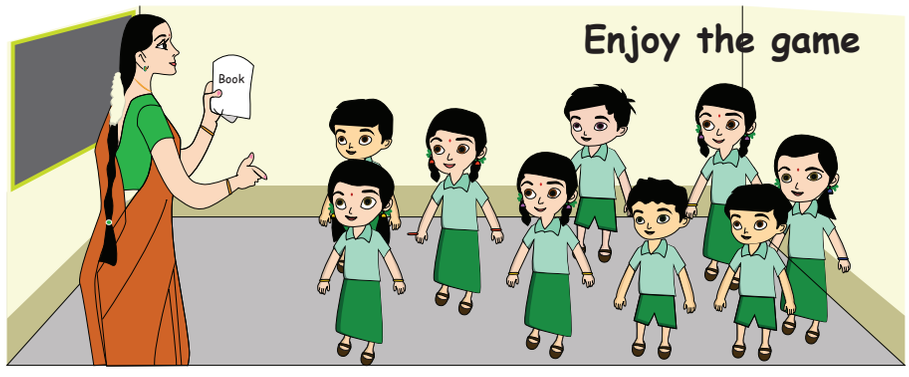
$2 \times 2 = 2^2 = 4$

$3 \times 3 = 3^2 = 9$

$4 \times 4 = 4^2 = 16$ and so on..

When you multiply a number by itself, the result is a square number.

Activity



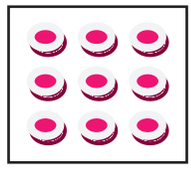
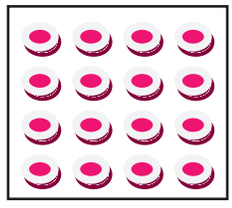
The teacher should say square number in order. All the students of the class should form groups according to their numbers.

Remaining students are runners up due to failure.

For example if a teacher say 4, if 33 students are in a class. All the students should create group of 8 students in the form of a square each of having 4 persons. One student will remain without a group

Likewise we can play the numbers **9, 16, 25** .....

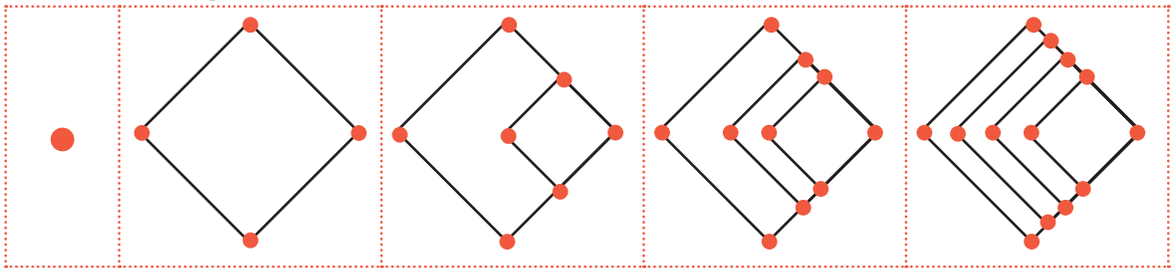
A number that can be shown using a pattern of dots in a square using flowers or small balls.
We can arrange by counting below numbers, that will make a square shape.

1 x 1 = 1	
2 x 2 = 4	
3 x 3 = 9	
4 x 4 = 16	

Think it

Two square numbers are added together to make another square number.
Ex. 9 + 16 = 25
Can you find other one?

Look at the figures shown below



1	4	9	16	25

Do you know

Square of number	Sum of digit of square
$1^2 = 1$	1
$(11)^2 = 121$	$1 + 2 + 1 = 4 = 2^2$
$(111)^2 = 12321$	$1 + 2 + 3 + 2 + 1 = 9 = 3^2$
$(1111)^2 = 1234321$	$1 + 2 + 3 + 4 + 3 + 2 + 1 = 16 = 4^2$

Let us know

Joshua formed a square using 12 bindis. is it 12 is a square number?

No because there are so many gapes in the square.

Though the number 12 made the square. But it is not a square number.

Do yourself

1. Count and write the tiles :

Figure					
Number of Tiles					

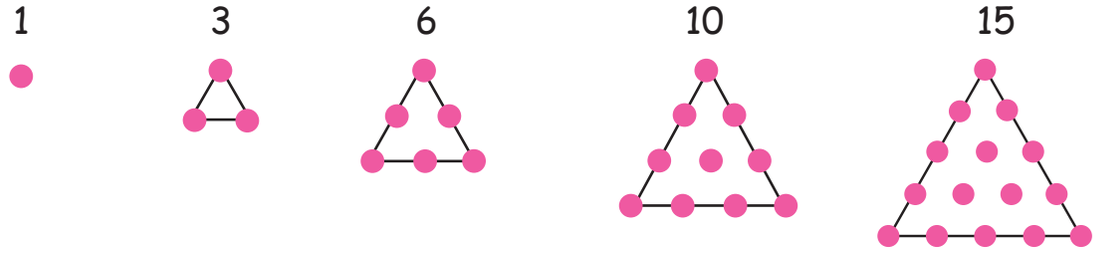
2. Circle the square numbers

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Triangular Numbers

Any of the series of numbers obtained by continued summation of the natural numbers.

A number that can make a triangular dot pattern.



By adding another row of dots and counting all the dots we can find the next number of the sequence.

The first triangle has just 1 dot.

The second triangle has another row with 2 extra dots, making 1+2=3

The third triangle has another row with 3 extra dots, making 1+2+3=6

so, the fourth has 1+2+3+4=10. And the series goes on,

Here 1, 3, 6, 10, 15, ... are called triangular numbers.

These numbers 1, 3, 6, 10, 15, 21... etc. are in triangular shapes.

Note

Picture form of a triangular numbers can make a equilateral triangle or right angle triangle.

Do you know

What is the relationship between triangular numbers and natural numbers?

$1 = 1$

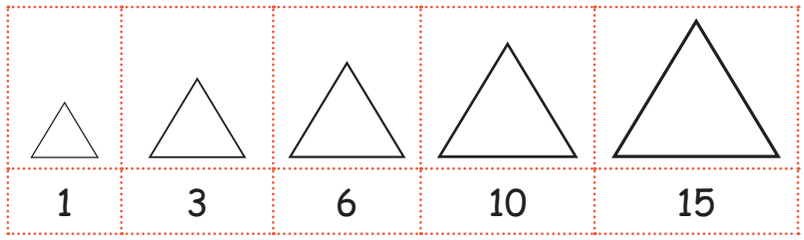
$1 + 2 = 3$

$1 + 2 + 3 = 6$

$1 + 2 + 3 + 4 = 10$

$1 + 2 + 3 + 4 + 5 = 15$ → Triangular numbers

Can you understand now? Yes, The sum of consecutive natural numbers make the triangular numbers.



Do yourself

Make the triangle shapes in the form of series of the triangular numbers by nuts

Exercise

a. Answer the following:

1. Square of the number 7

   a. 14 b. 49 c. 21 d. 28

R7D2X5

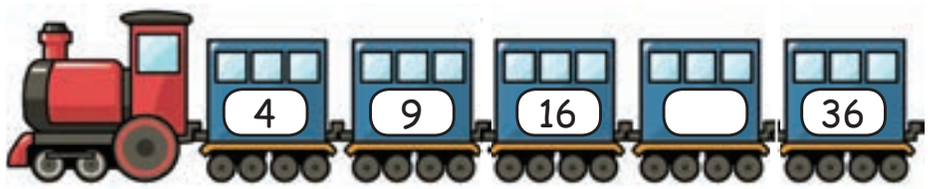
2. 64 is the square number of _____

   a. 4 b. 16 c. 8 d. 32

3. Is 24 square number?

4. A number, multiply by _____ is called square of the number.

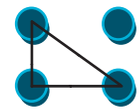
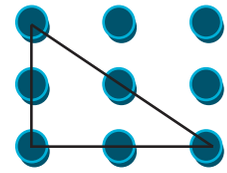
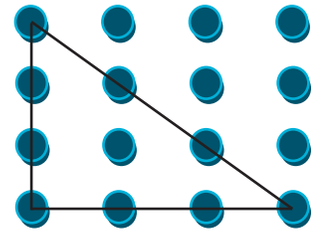
5. Fill in the blank box.



6. 1, 3, 6, _____, 15, _____, 28

Do you know

The result of the sum of two triangular numbers is square number.

1 + 3 = 4	
3 + 6 = 9	
6 + 10 = 16	

3.2b To relate sequences of odd numbers between consecutive square numbers.

Relationship between consecutive square numbers and odd numbers.

We have already learnt about the relationship between square numbers and triangular numbers.

Now we are going to know the relationship between consecutive square numbers and odd numbers.

When we add the consecutive odd numbers from 1, we will get the square numbers.

1	=	1
1 + 3	=	4
1 + 3 + 5	=	9
1 + 3 + 5 + 7	=	16
1 + 3 + 5 + 7 + 9	=	25

Square numbers

Note

1 is common number among square and triangular numbers.

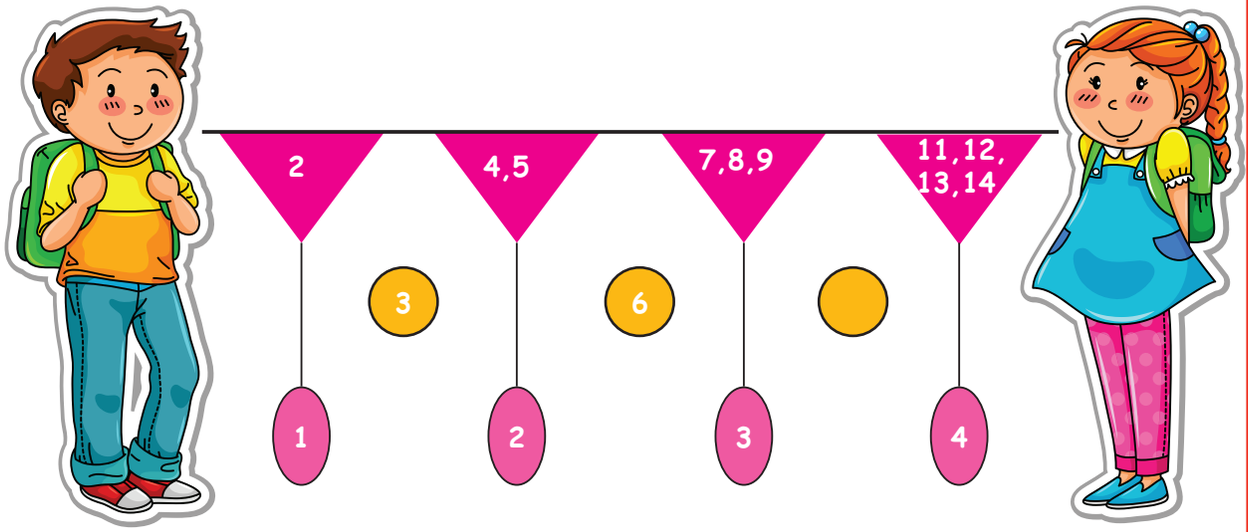
Try this

a. 1 + 3 + 5 + 7 + 9 + 11 = 36 = 6 x 6 = 6^2

b. 1 + 3 + 5 + 7 + 9 + 11 + 13= ____ = ____ = ____

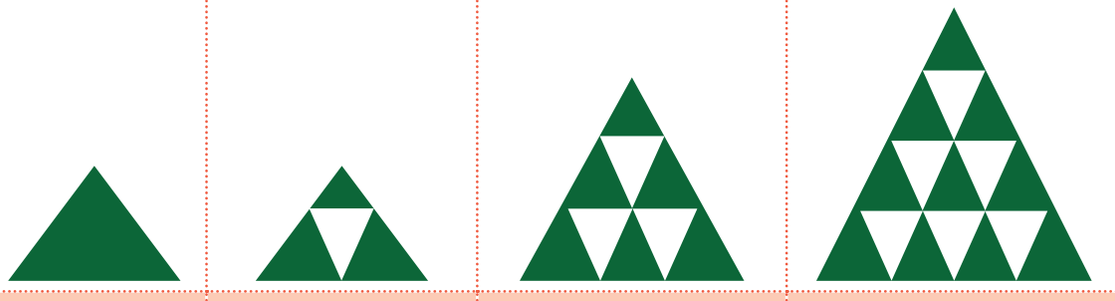
c. 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 = ____ = ____ = ____

Find the missing number!



Relationship between Square number and Triangle numbers

In mathematics, a square triangular number (or triangular square number) is a number which is both a triangular number and a perfect square. There are infinitely many square triangular numbers.



Green : 1	3	6	10
White : 0	1	3	6
Sum : 1+0=1	3+1=4	6+3=9	10+6=16

The sum of green and white triangles is denote the square number.

Let us Know

'36' is triangular and square number.

4.1 Length

43YWM1

4.1a Able to apply the four operation in solving problems involving length.

Introduction

In day to day life ,we are measuring many small things by standard and non standard units . But how can we measure the distance .

The metric units are used to measure the length and distance.

I am measurika. I would like to measure:

1. What is the length of the table?
2. How tall am I?
3. How far is my school from my home?

How do I measure it? What kind of measurements are they?

Ponni explained her that how long things are, how tall they are, or how far apart they might be. These are all the examples of length.

Measaurika, you should know the following measurements:

a. **Millimeter (mm): Millimeters is the smaller unit of length. A millimeter is about the thickness of a plastic id card (or Debit/ credit card). Or about the thickness of 10 sheets of paper on top of each other.**

This is a very small measurement!

S.no	Name of the object	Thickness in mm
01	Cell phone	
02	Maths Book	
03	Eraser	

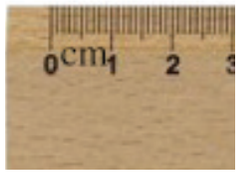
b. **Centimeter: 10 millimeters is equal to 1 centimeter**

1 centimeter = 10 millimeters

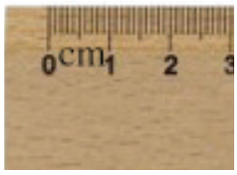
A fingernail is about one centimeter wide.

We can use millimeters or centimeters to measure how tall we are, or how wide a table is. But to measure the length of football field, it is better to use meters.

Measurika, could you please mark 5mm in the scale? Children could you please help measurika.

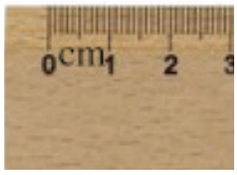


Could you please mark 4mm in red colour and 10mm in Green colour?



10 milli meter = 1 centi meter
10 centi meter = 1 deci meter
10 deci meter = 1 meter
10 meter = 1 deca meter
10 deca meter = 1 hecta meter
10 hecta meter = 1 killo meter

Could you mark 1cm and 3mm (1.3cm)?



S.no	Measure the length	Length in cm
01	Composition Note	
02	Your height	
03	Geometry box	

c. Meter

A meter is equal to 100 centimeters

The length of this guitar is about 1 meter

Meters are used to measure the length of a house, or the size of a play ground.

One meter is approximately the length from your shoulder to your fingertips. A meter is also approximately the distance of one large step or jump.

A Measuring tape has centimeter and meter units marked on it. Measuring tapes are useful for measuring lengths of cloth, or large household objects like furniture and rooms.

S. no	Measure the length	Length in meter
01	Classroom	
02	Distance between school entrance and your classroom	

d. Kilometer

When you need to get from one place to another, you can measure the distance using kilometers. A kilometer is equal to 1,000 meters.

The distance from one city to another or how far a plane travels is measured using kilometers.

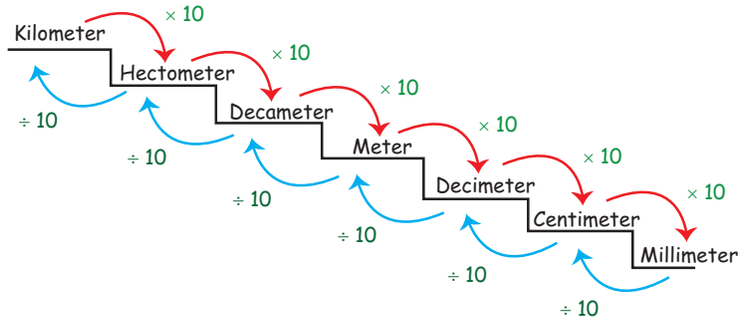
We can ride a Two wheeler/ Four wheeler to go from one place to the other. The distance travelled is measured using the speedometer.

1Km = 1000m

S.no	Calculate the distance	Distance in Km
01	Distance between school and your home	
02	School and your taluk head quarters	
03	School and your District	

4.2

Conversion



Let us know

To convert upper scale into lower scale the number should be multiplied.

To convert lower scale into upper scale the number should be divided.

100 centimeter = 1 meter

$\frac{1}{2}$ meter = 50 centimeter

$\frac{1}{4}$ meter = 25 centimeter

$\frac{3}{4}$ meter = 75 centimeter

1000 meter = 1 kilometer

Activity

Measure the things using a tape or a scale.

S.NO	Name of the object	Length			
		Km	Meter	Cm	mm
1.	Your's Shoulder length				
2.	Your's height				
3.	Thickness of the chess board				
4.	Distance between your house and uncle's house				

Examples 1

Convert into millimeter

(i) 70 cm

70 cm = 70 x 10 mm 1 cm = 10 mm

=700 mm

(ii) 65 cm 6 mm = (65 x 10) + 6 mm

= 650 + 6

= 656 mm

(iii) 7 m

7 m = (7x1000) mm 1 m = 1000 mm

= 7000 mm

Note:

1. To convert meter into millimeter multiply the given meters by 1000.
2. To convert centimeter into millimeter multiply the given centimeter by 10.

Try this

Convert into millimeters

1. 90 cm
2. 5 cm 8 mm
3. 5 m 9 mm

Examples 2

Convert into centimeters

(i) 5 m

5 m = (5 x 100) cm

= 500 cm

(ii) 7 m 40 cm

7 m 40 cm = (7 x 100) + 40 cm

= 700 + 40

= 740 cm

(iii) 110 mm

110 mm = 110 ÷ 10 cm

= 11 cm

Note:

To convert meter into centimeter multiply the given meters by 100

Try this

Convert into centimeters

1. 8 m **2.** 6 m 4 cm **3.** 80 mm

```
      11
   ┌──────
10 │ 110
   │ 10
   ├──────
     10
     10
   ├──────
      0
```

Examples 3

Convert into meter

(i) 7 km 50 m

1 km = 1000 m

7 km 50 m = (7 x 1000) + 50 m

= 7000 + 50

= 7050 m

(ii) 850 cm

850 cm = 850 ÷ 100 m

= 8 m 50 cm

(iii) 2005 mm

2005 mm = 2005 ÷ 1000 m

= 2 m 5 mm

Note:

1. To convert kilometer into meter multiply the given kilometer by 1000.
2. To convert millimeter into meter divide the given millimeter by 1000.

Try this

Convert into meter

1. 8 km 400 m
2. 900 cm
3. 3500 mm

```
      8 m
   ┌──────
100 │ 850
    │ 800
    ├──────
      50 cm
```

```
      2 m
   ┌──────
1000 │ 2005
     │ 2000
     ├──────
       5 cm
```

Examples 4

Convert into kilometer

(i) 9000 m 1000 m = 1 km

9000 m = 9000 ÷ 1000 m

= 9 km

```
        9 km
1000 | 9000
       9000
       ----
          0 m
```

(ii) 2300 m

2300 m = 2300 ÷ 1000 m

= 2 km 300 m

```
        2 km
1000 | 2300
       2000
       ----
        300 m
```

Note:

To convert meters into kilometers divide the given meters 1000.

Try this

Convert into kilometer

1. 5430 m
2. 7500 m
3. 8000 m

4.3 Addition

Example

1. Find the sum of the following.

(i) 7 m 25 cm + 15 m 50 cm

	m	cm
	7	25
+	15	50
	22	**75**

Sum =22 m 75 cm

Step:1 Start from centimeter
25 cm + 50 cm = 75 cm

Step:2 Add meters
7 m + 15 m = 25 m

(ii) 5 km 700 m + 12 km 450m

	km	m
	❶	
	5	700
+	12	450
	18	**150**

Sum = 18 km 150 m

Step:1
Add meters 700 + 450 = 1150

Step:2
Convert meter into kilometer
1150 ÷ 1000 = 1 km 150 m

Step3:
Add 1 km to the km column
1 km + 5 km + 12 km = 18 km
1 + 5 + 12 = 18

Example

2. The length of three ropes are 1 m 20 cm, 2 m 15 cm and 1 m 25 cm. What is the total length of three ropes?

Solution:

		m	cm
The length of the first rope	=	1	20
The length of the second rope	=	2	15
The length of the third rope	=	1	25
Total length of ropes		**4**	**60**

Total length of the ropes = 4 m 60 cm

4.4 Subtraction

Examples

Find the difference

(i) 75 km 500 m – 40 km 250 m

	km	m
	75	500
-	40	250
	35	**250**

Difference = 35 km 250 m

(ii) 55 km 75 cm – 23 m 40 cm

	m	cm
	55	75
-	23	40
	32	**35**

Difference = 32 m 35 cm

Try this

Subtract the following

1. 1075 km 400 m- 27 km 350 m
2. 250 m 25 cm- 127 m 18 cm
3. 27 km 900 m- 18 km 850 m

Example

Kannan bought 90 m 80 cm of cloth .He used to stich uniform of 43 m 75 cm. How much cloth is left?

Solution:

		m	cm
Total length of cloth	=	90	80
The length of cloth used to stich uniform	=	43	75
The length of remaining cloth		47	05

The length of the remaining cloth is 47 m 05 cm.

4.5 Multiplication

Example 1

(i) 12 km 225 m x 6

	km	m
	12	225
x		6
	73	**350**

225m x 6 = 1350m
= 1km 350m

12 km 225 m x 6 = 73 km 350 m

(ii) 75 m 15 cm x 5

	m	cm
	75	15
x		5
	375	**75**

75 m 15 cm x 5 = 375 m 75 cm

Try this

a. 7m 20cm x 6
b. 15m 75cm x 5
c. 15km 200m x 4
d. 35km 500m x 5

Example 2

The length of a ribbon is 4 m 25 cm. Find the total length of three ribbons.

Solution:

Length of one ribbon = 4 m 25 cm

Length of three ribbons = 4 m 25 cm x 3

= 12 m 75 cm

Length of three ribbons = 12 m 75 cm

4.6 Division

Example 1

(i) 84 m 40 Cm ÷ 4

```
          m    cm
          21   10
     4 | 84    40
       - 8
          4
       -  4
               4
       -       4
               0
```

84 m 40 cm ÷ 4 = **21 m 10 cm**

(ii) 360 km 540 m ÷ 9

```
          km    m
          40    060
     9 | 360    540
      - 36
          0     54
          -     54
                0
```

Answer = **40 km 060 m**

Try this

a. 750 m 45 cm ÷ 5
b. 49 km 630 m ÷7
c. 770 km 550 m ÷ 11

Example 2

If the total length of 4 pieces of clothes is 8 m 60 cm. What is the length of one piece of cloth?

Solution:

Total length of cloth = 8 m 60 cm

Length of one piece = 8 m 60 cm ÷ 4

Length of one piece = 2 m 15 cm

Length of one piece = **2 m 15cm**

	m	cm
	2	15
4	8	60
	-8	
		6
		-4
		20
		-20
		0

Exercise 4

A. Fill in the blanks

1. 7 m 5 cm = _____cm
2. 505 mm = _____cm _____mm
3. 326 m = _____cm
4. 5 km 30 m = _____m
5. 650 cm = _____m _____cm

B. True or False

a) 600 m is 6 mm.

b) 7000 m is 7 km.

c) 400 cm is 4 km.

d) 770 mm is 77 cm.

e) 9000 m is 90 mm.

C. Find the sum of the following.

1. 17 m 450 cm + 52 m 300 cm
2. 75 km 400 m + 37 km 300 m + 52 km 750 m
3. 4 cm 8 mm + 5 cm 9 mm

FZKRBW

D. Subtract the following

1. 15 km 450 m - 13 km 200 m.
2. 750 m 840 mm -370 m 480 mm.
3. 5 km 400 m - 3 km 350 m

E. Multiply the following.

1. 350 m 45 cm x 7
2. 25 km 300 m x 6
3. 37 m 350 mm x 8

F. Divide the following:

1. 950 km 800 m ÷ 5
2. 49 m 770 mm ÷ 7
3. 172 m 48 cm ÷ 4

LIFE ORIENTED PROBLEMS

G. Answer the following:

1. Saravanan had chosen to drive his vehicle from puducherry to Chennai for a distance of 165 Kms. While starting his vehicle, his odometer showed 00015. What will be the reading of the odometer, When he reaches Chennai?
2. Karthik Raja decided to travel from A. He moves 1Km east to reach B. Then he goes 2Km towards north and reaches C. Then he goes 1 Km towards west and reaches D. If he goes 2Km towards South, Where would he reach? Draw a Diagram and Justify it. Also find out the total distance he travelled.
3. Sangeetha has just finished building a new house with garden area. She measured the garden area and found it to be 6m x 6m. Suppose she has to put a pole every 1m, how many poles are required? Each pole is of height 1.5m from the ground. What should be the total length of the fencing material to fence the garden?
4. A students needs 1m 25 cm cloth to stich a shirt. What is the total length of cloth need to stitch 22 shirts?
5. The distance from village A to village B is 3 km 450 m. The distance from village B to village C 5 km 350 m. How long will be the road laid from village A to village C?

H. Create the story problem using the pictures given below:0




YEZ6CE

Recall

Draw the hour Hand and write the time.

Yesterday when you went to bed?_____

When will you get up in the morning? _____

When will you go to school? _____

See the clock and write the time		Write the time in the Clocks	
			11:40
			04:55
			01:40

5.1 Railway time

We are using 12 hours time generally. To avoid confusion, we use railway time in railway station, television. airport, internet, etc. When we are going to railway station we cannot see or hear announcements in a.m. or p.m. Because railway uses 24 hours time?

Generally railway time is written in 4 digits.
The first two digits show the hour and the last two digits show the minutes.

24-Hours Clock

We can write,

Mid night 12 O Clock is 0000 hour or 24 hours		Noon 12 O Clock – 12.00 hours
9. am – 09.00 hours		1. p. m – 13.00 hours (12+1) hours

While converting the 12 hour time to 24 hour time during p.m. we should add 12 to hours and keep the minutes same.

5.2 Conversion

12 hours Clock	24 hours Clock	12 hours Clock	24 hours Clock
12 Mid night	0000 hours or 2400 hrs	12:01 p.m.	12:01 Hours
0:20 a.m.	00:20 Hours	12:59 p.m.	12:59 Hours
0:49 a.m.	00:49 Hours	1:00 p.m.	13:00 Hours
1:00 a.m.	01:00 Hours	4:00 p.m.	16:00 Hours
4:00 a.m.	04:00 Hours	5:20 p.m.	17:20 Hours
5:30 a.m.	05:30 Hours	9:45 p.m.	21:45 Hours
11:15 a.m.	11:15 Hours	11:30 p.m.	23:30 Hours
12:00 Noon	12:00 Hours	12 Mid night	00:00 hrs or 24:00 hrs

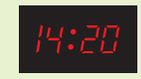
Try this

Standard time	Railway time
1. 3.30 a.m.	_____ Hours
2. 4.15 p.m.	_____ Hours
3. _____	12.50 Hours
4. _____	20.15 Hours
5. 12.25 p.m.	_____ Hours
6. 01.55 p.m.	_____ Hours

24 hour Clock 12 hour Clock

2:20 am  2:20

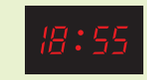
Mid night 2 hours 20 minutes

2:20 pm  

After noon 2 hours 20 minutes

6:55 am  6:55

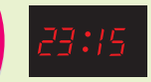
Morning 6 hours 55 minutes

6:55 pm  

Evening 6 hours 55 minutes

11:15 am  11:15

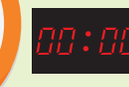
Morning 11 hours 15 minutes

11:15 pm  

Night 11 hours 15 minutes

12:00  12:00

Noon 12 hours

12:00  

Mid night 12 hours

Try this

Write the A.M./P.M.

1. Ravi starts to school at 8:45 ___
2. Ramya eats her lunch at 1:00___
3. Afrin sees the moon at 8:20_____
4. Kavi goes to bed at 9:00____
5. The sun rises at 6:10____

5.3 Use addition and subtraction in finding time interval

Addition

Example

Add : 4 hours 30 minutes and 2 hours 45 minutes

	Hours	Minutes
	4	30
+	2	45
	6	75
	7	15

75 minutes = 1 hour 15 minutes

7 Hour 15 minutes

Example

Krishna goes to his village. He travels 4 hours 35 minutes in bus and 1 hour 55 minutes in two wheeler. What is his total time of travel?

			Hours	Minutes
Travel in bus	=		4	35
Travel in two wheeler	=	+	1	55
			5	90
Total time	=		6	30

90 minutes = 60+30 minutes
60 minutes = 1 hour
30 minutes = 30 minutes
∴ 5+1 = 6 hour 30 minutes

∴ Krishna travels totally for 6 hour 30 minutes

Subtraction

Example

Subtract : 3 hours 45 minutes from 5 hours 30 minutes

	Hours	Minutes
	5	30
-	3	45

	Hours	Minutes
	4	60+30
	~~5~~	30
-	3	45
	1	45

1 Hour 45 minutes

We can't Subtract 45 minutes from 5 hours 30 minutes so we change the 5 hours in to (60 + 30) 90 minutes and subtract 45 minutes from 90 minutes. We can get 45 minutes.

When we subtract 3 hours from 4 hours balance is 1 hour

Example

Ram works on his Computer from morning 10' O Clock to Evening 3.30. How long does he work on his computer?

		Hours	Minutes
Ram work on his Computer at Evening	=	3	30
His work at Morning	=	10	00

	Hours	Minutes
	15	30
-	10	00
	5	30

Subtract from a.m. to p.m., we add 12 hours.

Add 3.30 hours + 12 hours we can get 15:30

∴ Ram works 5 hours 30 minutes on his computer

Example

SCHOOL TIME TABLE			
First bell	9:30 a.m.	**Lunch time**	12:40 p.m. to 2:00 p.m.
Morning prayer	9:15 a.m.	**Afternoon school starting time**	2:00 p.m.
Class starting time	9:30 a.m.	**Afternoon break time**	3:20 p.m. to 3:30 p.m.
Morning break time	11:00 a.m. to 11:10 a.m.	**Evening school closing time**	4:10 p.m.
Morning school closing time	12:40 p.m.		

1. Find the time interval between First bell and morning break.

		Hour	Minutes
Morning break time	=	11	00
First bell time	=	- 9	00
		2	00

The time interval between First bell and morning break is **2 Hours.**

2. Find the time interval between the time of class starting and the time of morning break.

		Hour	Breaking time
		10	(60 + 10)
Morning break ending time	=	~~11~~	10
Class starting time	=	- 9	30
		1	40

The time interval between class starting time and morning break ending time is 1 hour 40 minutes.

We can't subtract 30 minutes from 10 minutes so we convert to hour into minutes 1 hours to 60 minutes and add.

60+10 = 70 now we subtract 30 minutes from 40 we can get 1 hour 40 minutes.

3. Find the total time from starting of morning class to Closing of Afternoon class.

	Hour	Minutes
Afternoon class ending time =	4	10
Morning class starting time =	9	30

Hours	Minute
	(60+10 = 70)
15	
~~16~~	10
9	30
6	40

Add 12 hours, 4.10 + 12.00 = 16 Hours + 10 minutes.

The total time from starting of morning class to closing of afternoon class is 6 hours 40 minutes.

Try this

Find the time interval between starting of afternoon class and closing of evening class.

		Hour	Minutes
Evening school ending time	=	4	10
Afternoon school starting time	=	- 2	00

Subtract from am to pm, we add 12 hours and then subtract the a. m time

Exercise 5

a. Write down your school time table for the following:

- Morning school break time to morning school ending time.
- Morning school working time.
- Afternoon school working time.
- Afternoon Lunch break time.

BBL12A

b. Match the following:

12 hours time	24 hours time
9:40 a.m.	23:40 Hours
3:20 p.m.	6:25 Hours
6:25 p.m.	15:20 Hours
11:40 p.m.	9:40 Hours
6:25 a.m.	18:25 Hours

c. Addition

1. 4 hours 30 minutes +2 hours 50 minutes = _____
2. 4 hours 50 minutes +2 hours 30 minutes = _____
3. 3 hours 45 minutes +1 hours 35 minutes = _____
4. 1 hours 50 minutes +3 hours 45 minutes = _____
5. 2 hours 25 minutes +4 hours 50 minutes = _____

d. Subtract

1. 5 hours 10 minutes – 2 hours 35 minutes = _____
2. 4 hours 20 minutes – 2 hours 40 minutes = _____

3. 4 hours 25 minutes – 1 hours 20 minutes = _____

4. 6 hours 55 minutes – 2 hours 20 minutes = _____

5. 5 hours 45 minutes – 3 hours 55 minutes = _____

e. Answer the following:

1. An office works from morning 10' O clock to afternoon 6' O clock. What is the working hours of the office in a day?

2. A school works from 9 a.m. to 4.10 p.m. What is the working hours of the school?

3. A circus starts at 2:15 p.m. and end after 2:30 hours. At what time the circus ends?

4. A bank works from morning 9:30 to evening 4:30. What is the working hours of the bank?

5. A man comes to his village from abroad. He travels 2 hours 15 minutes in Aeroplane and 4 hours 40 minutes in Car. What is his total time of travel?

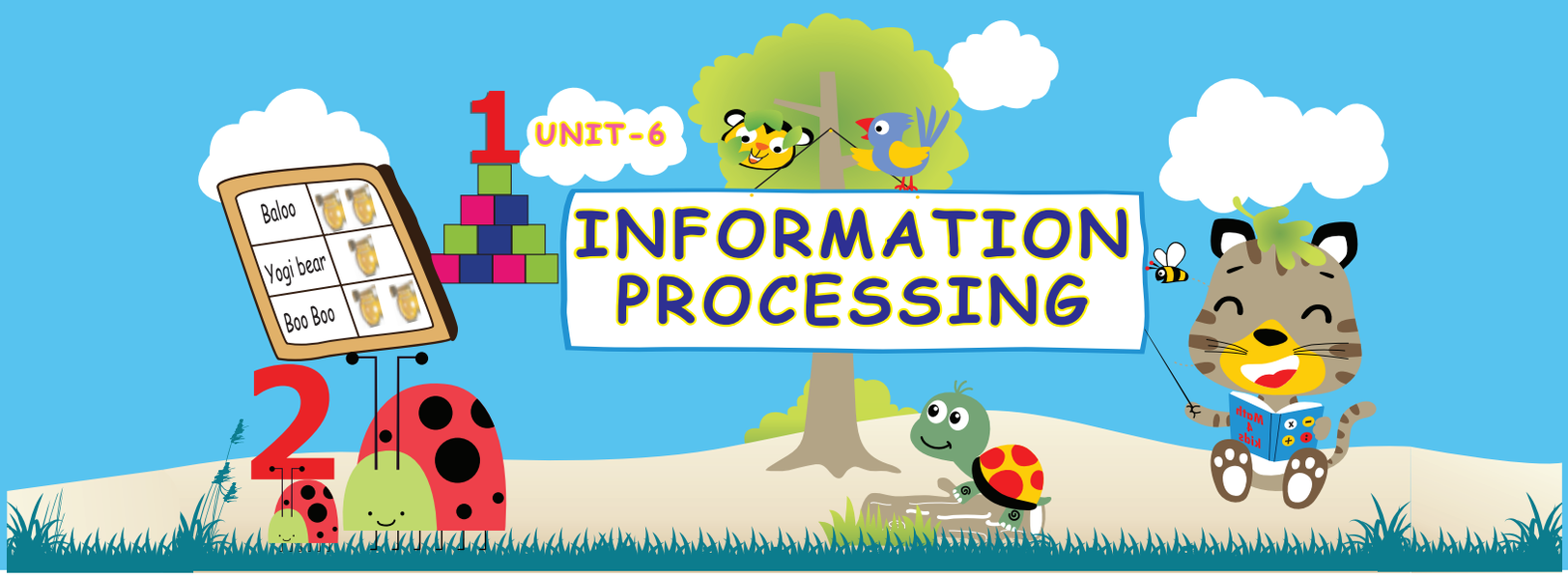
6. A painter paints a house for 3 hours 15 minutes in the morning, and 2 hours 50 minutes in the evening. What is his total time of work?

Project / Activity

[24 hours Clock]

Write down the time of travel.

Train Name	Starting time Chennai	Reaching time	Travelling time
Sarkar Express Kakkinoda	17:20	09:50	
Rameswaram Express train Rameswaram	19:15	08.35	
Ananthapuri Express Kollam	06:50	08.20	
Sozhan Express Train Trichirapalli	08:00	16.00	



UNIT-6

INFORMATION PROCESSING

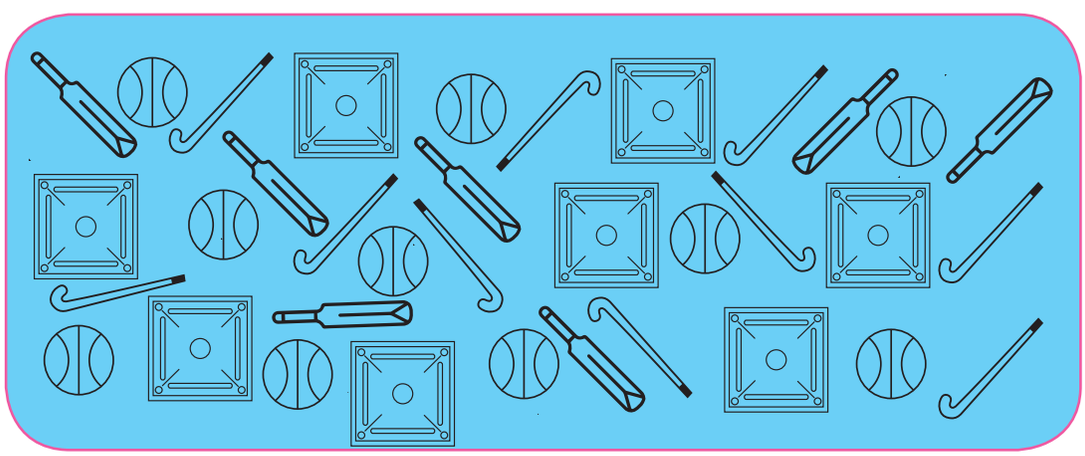
N87UR6

Introduction

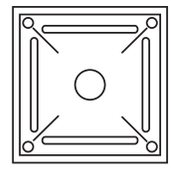
The main aim of information processing is to enable the learners to count, compare and assume information such as invitees coming to attend a birthday party, sort out the library books, food production, the number of pupils taking food in the mid-day meal scheme and the various occupations of their parents.

Example

The teacher asked a student named Dinu to collect the pictures of his favourite sports articles and Dinu collected the same and handed it over to the teacher quickly. Let us see how is it possible for him to do it quickly.



He tabulated the same as follows, then the teacher asked questions to classify the details of sports articles.

Sports article				
Numbers	7	10	8	10

Let us know what the teacher asked dinu?

1. Find the total number of pictures?
2. How many students like cricket bat?
3. How many students like football?
4. How many students draw Carrom board?
5. How many students like hockey stick?

6.1 Systematic Listing

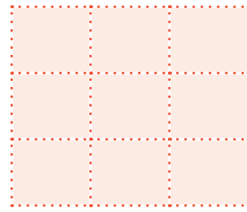
Number puzzle is considered to be one of the unique games in mathematics. These types of games create more interest and involvement to learn mathematics in a very easy manner.

It is very happy to note that most of the number puzzles contain the basic knowledge of mathematics.

Here is a game of number puzzle with a systematic rule and with a specific property.

i. Choose any one number
ii. Add the next number to this
iii. Then add 9
iv. Divide by 2
v. And then subtract the assumed number
vi. **Answer 5** (common for all)

Let us know



The above diagram (grid) shows rows and columns, horizontal squares are called **Rows** vertical squares are called **Columns**.

Example 1

3×3 Sudoku

The object is to fill all empty squares so that the numbers 1 to 3 appear once in a row and column.

Step: 1

1	2	3

Step: 2

1	2	3
2	**3**	**1**

Step: 3

1	2	3
2	**3**	**1**
3	**1**	**2**

Try this

In how many ways can we arrange the numbers 1 to 3 in first Row?

[**Answer:** (1 2 3), (1 3 2),(2 1 3),(2 1 3),(3 1 2)]

Example 2

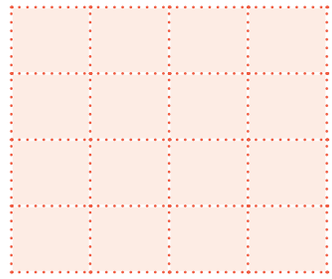
4×4 Sudoku

1	4	3	
3			
	1		3
2		4	1

Answer:

1	4	3	**2**
3	**2**	**1**	**4**
4	1	**2**	3
2	**3**	4	1

Try it



In how many ways can we arrange the numbers from 1 to 4 in first row?

Let us know

5, 3, 2 = 15 10 22

9, 2, 4 = 18 36 52

8, 6, 3 = 48 24 66

5, 4, 5 = 20 25 41

therefore 7, 2, 5 = ?

Answer: 14 35 47

Hint:

(i) Multiply of 1st and 2nd numbers 7 x 2 = 14

(ii) Multiply of 1st and 3rd numbers 7 x 5 = 35

(iii) Add the 2 products and subtract the middle number

= 14 + 35 = 49 - 2 = 45

Exercise 6.1

a. Fill the suitable number in the boxes

1

1		3
	5	
7	8	

2

1		2
3		1

3

2		
	2	
		2

4

3		
	3	
		3

b. Solve 3×3 magic square using the numbers from 1 to 9

			15
			15
			15
15	15	15	

c. Complete the following 4×4 Sudoku using the numbers 1, 2, 3, 4

1			
	4		
4			
	3		1

		1	
	4		
3			2

	1	3	
2			1

d. Can you spot the duplicate?

DEF, EFD, FDE, EFD, FED, DFE, EDF

e. Can you find the mistake? Explain

ABC, ACB, BCA, BAA, CAB, CBA

6.2 GRAPHICAL REPRESENTATION OF DATA

6.2a Collection of two – dimensional quantitative Data

The easy method to calculate is to tabulate the collected 2 – dimensional information and represent it in pictures.

Example 1

Sports day celebration

After the Sports day Celebration, the students kept all the used sports articles in a room. The physical director asked the students Dinesh & Ganesh from Fifth Standard to arrange the sports article in order. They tabulated the sports articles as below

Note:

Rows are horizontal arrangements whereas column are vertical arrangements.

Let us know

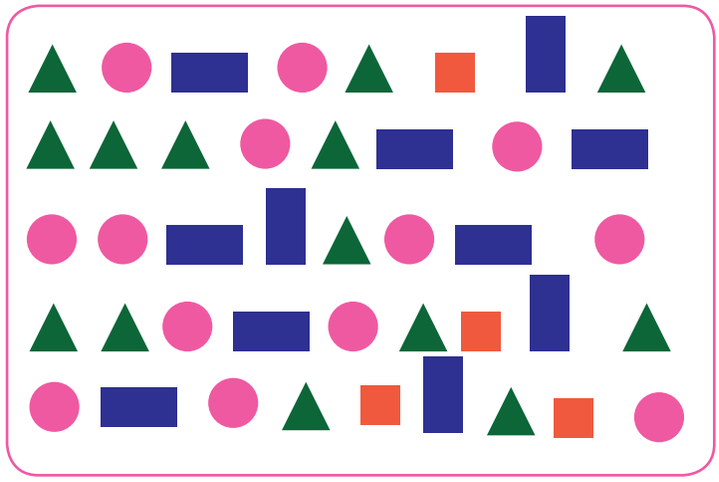
The process of arranging classified data in table form is known as tabulation.

Let us see how they arranged in a proper way

Shapes										
Numbers	4	1	2	6	11	3	2	1	1	10

Activity 1

In a Sports day celebration. The Fifth standard students were given a competition of collecting mathematical shapes. Shakuntaladevi team won the competition.



Try this

Can you make a rectangle using the triangles taken from a square?

Let us count the shapes collected by the winning team.

Shapes	▲	▬	●	■
Numbers				

Example 2

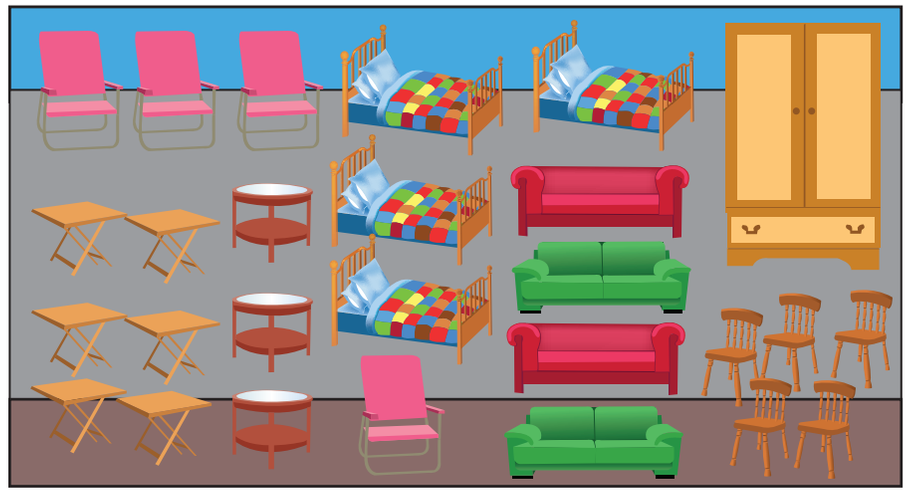
Prabu would like to present some gifts on his birthday party. He collected the details from his friends.

Friends name	Favourite item	Friends name	Favourite item
Mathavi	Pen	sangavi	Eraser
Arul	Eraser	Priya	Pencil
Anjali	Eraser	Vishal	Pen
Malar	Pen	John	Colour Pencil
Vembu	Pencil	Ravi	Pencil box
Selvi	Scale	Albert	Water bottle
begam	Pencil	Periasamy	Pencil box
		Senthil	Water bottle

Items	Pencil box	Pen	Eraser	Pencil	Scale	Water bottle	Colour Pencil
Numbers	2	3	3	3	1	2	1

Activity 2

In a house hold articles mart, total stock was calculated at the end of the month as given below. Answer the following question.



Questions:

1. How many chairs were there in the stock list?
2. Name the articles which are lesser than the number of cots.
3. What is the total number of things in the stock?
4. How many tri footed stools were there?
5. Mention the articles which are 3 greater than tri footed stool?

Do it your self

List & tabulate the furniture in your school.

6.2b Pictograph

Information can be easily understood when they are represented in pictures.

A **pictograph** is the representation of data using pictures. Pictographs represent the frequency of data while using symbols or images that are relevant to the data. This is one of the simplest ways to represent data.

Example

This is information collected from 150 students about their favourite subjects. Make a pictograph based on it:

Subject	Number of students
Tamil	25
English	20
Maths	55
Science	35
Social sciences	15

 = 5 students

Subject	Number of students
Tamil	
English	
Maths	
Science	
Social sciences	

Activity

The following information shows the number of literates in a village of 200 people. Draw a pictograph for the data.

Education	Numbers
Up to Eigth standard	20
Up to Tenth standard	50
Up to Twelveth standard	70
Under Graduate	10
Post Graduate	10
Up to Fifth standard	10
Illiterates	30

Exercise 6.2b

1. The following table shows the weight of paddy Cultivated in a particular village between 2010 and 2015

Year	Paddy production
2010	
2011	
2012	
2013	
2014	
2015	

 = 100 kg

Observe the pictograph and answer the following questions.

1. In which year the paddy production was maximum?
2. In which years the paddy productions were equal?
3. Find the paddy production in 2015,.
4. Find the total quantity of paddy production in 2013, 2014, and 2015.

2. The total number of pupils studying in class 5 are as follows

GHSS: 1000 PUPS: 200 BHSS: 400

PUMS: 400 Private nursery School: 800

Prepare a pictograph using the symbol  to represent 100 Pupils and answer the following question:

1. Which school has the maximum number of pupils?
2. Which school has the least number of pupils?

6.2c Graphical Representation or Data

Any collection of information in the form of numerical figures giving the required information is called Data.

In olden days, primitive man used to count and verify his livestock using stones.This is the first data gathering method. Nowadays we use many methods to collect information the most efficient method is to keep a **"tally stick"**.

Example 1

An information was collected about the number of vehicles which crossed a school on a particular time.

Car	11111111111
Van	1111111
Lorry	1111111111111
Two wheelers	111111111111
Bus	1111

'1' is called a 'tally mark'. It is difficult to count if there are more number of tally marks.

Therefore to make it easier to count, we change it as follows.

11 - 2	~~1111~~ 11 – 7
111 – 3	~~1111~~ 111 – 8
1111 – 4	~~1111~~ 1111 – 9
~~1111~~ – 5	~~1111~~ ~~1111~~ – 10
~~1111~~ 1 – 6	~~1111~~ ~~1111~~ 1 – 11

Note:
We can use tallymark to record data with large numbers.

Solution

Vehicles	Tally mark	No. of vehicles
Car	~~1111~~ ~~1111~~ 1	11
Van	~~1111~~ 11	7
lorry	~~1111~~ ~~1111~~ 111	13
Two wheelers	~~1111~~ ~~1111~~ 11	12
Bus	1111	4

Answer the following questions:

1. Which vehicle crossed the school maximum in numbers?
   Answer: lorry
2. Find the total number of vehicles which crossed on a particular time? Answer: 47

Example 2

Information was collected by Balu from 20 students of class five regarding their favourite snacks. Tabulate the given information.

Students	Favourite snacks	Students	Favourite snacks
1	Chocolate	11	Apple
2	Cake	12	Chocolate
3	Biscuit	13	Cake
4	Chocolate	14	Chocolate
5	Chocolate	15	Chocolate
6	Banana	16	Cake
7	Biscuit	17	Banana
8	Biscuit	18	Chocolate
9	Biscuit	19	Apple
10	Chocolate	20	Chocolate

Tabulate the above information by using Tallymark. Here, all the students have chosen any one of the snacks we can tabulate it as follows.

Name of the snack	Tallymark	No.of students
Chocolate	~~1111~~ 1111	9
Cake	111	3
Biscuit	1111	4
Apple	11	2
Banana	11	2

Activity 1

The number of two-wheelers sold during a week in a show room is given below. Represent the data using tally marks.

Sunday-6	Wednesday-5
Monday-11	Thursday-16
Tuesday-3	Friday-16
	Saturday-4

Activity 2

In a mathematics test, the following marks were obtained by 30 students. Arrange these marks in a table using tallymarks.

8	1	3	2	6	4	2	8	4	9
2	9	5	7	6	2	7	10	2	4
3	4	7	5	5	5	6	3	8	6

(a) Find how many students obtained marks equal to or more than 8?

(b) How many students obtained marks below 4?

Mark	Tally marks	Number of students
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Try this

Ask the students to collect the information about the number of students present in a particular day of the school. Tabulate the above information using tallymarks.

Do it yourself

Ask the students to collect information about the different types of houses in their villages and complete the following table.

Type of the house	Tally mark	Total number of houses
Thatched house		
Tiled house		
Asbestos house		
Concrete house		

Try yourself

Choose any five cities and record their temperature from the TV (or) Newspaper.

Try this

Collect information based on the points given below and prepare a table using tally marks

(a) Which story book do your classmates like?

Clue [Fairy tales, Moral stories, Comics, picture stories, fictions and animal stories]

(b) What do your classmates want to become when they grow up?

Clue [Doctor, Farmer, Engineer, Pilot, Politician, Teacher]

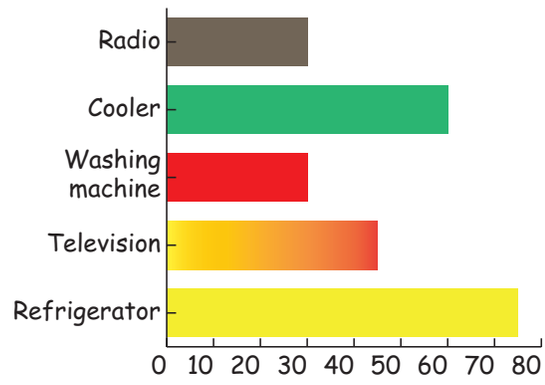
6.2d Bar graph

A Bar graph is a chart that uses bars to show comparisons between categories of data. The bars can either be horizontal or vertical.

Example 1

The number of things sold in a month of January in a particular shop is shown below. Draw a bargraph.

Home appliance things	No. of things sold
Refridgerator	75
Television	45
Washing machine	30
Cooler	60
Radio	30



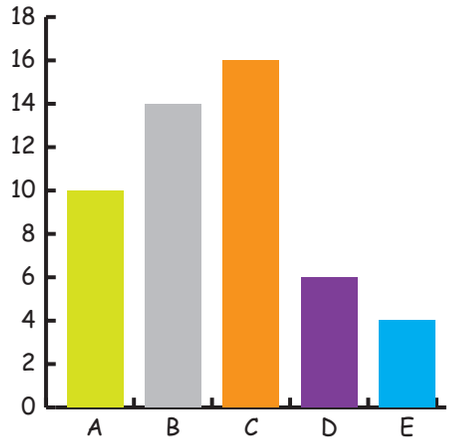
Activity 1

1. Take a survey among your friends and family on their favourite pets. Use the information to draw a bargraph.
2. Take a survey among your school friends or their favorite colour. (key: Purple, Green, Red, Brown, Blue)
   Draw a bargraph to represent your data.

Activity 2

The following information is collected from 50 students of class 5 about their grades in exams. Complete the following table.

Grade	Tallymark	No. of students
A	𝍸 𝍸	10
B	𝍸 𝍸 1111	14
C	𝍸 1	
D		
E		



Example 2

In Trichy, a GHSS has five different clubs. The data shows the number of students in each club. Use the information to draw a bargraph and answer the questions.

Art club	Debate club	Dance club	Drama club	Sports club
28	80	150	100	120

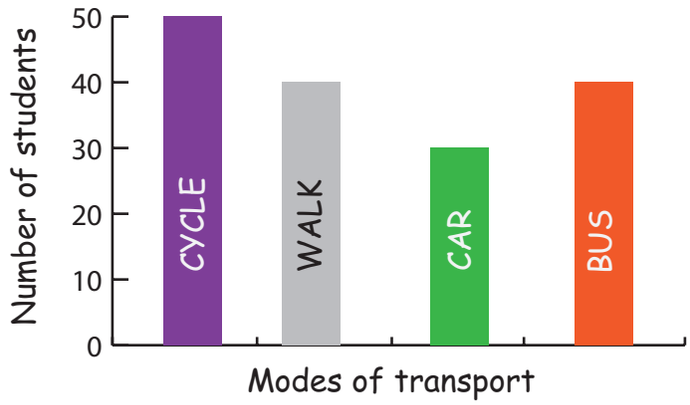
1) Which club has the fewest students? How many?
   Answer: Arts club 28
2) How many students are there in art and debate clubs?
   Answer: 28+80=108
3) Find how many students are there in the sports club more than the drama club?
   Answer: 20
4) How many students are there in all clubs together?
   Answer: 478

Activity 3

Take a survey among your classmates on their favourite hobby.
[Clue: Reading, Painting, Gardening, Cooking, Fishing]
Draw bargraph to represent your data.

Exercise 6.2c

a. The bar chart represents the number of students using different modes of transport. Answer the following questions.



Questions

1. Which mode of transport is mostly used by the students?
   _____
2. How many students come to school by walking? _____
3. Which mode of transport is used the least? _____
4. How many students come by Bus? _____

b. The following information shows the grades in science and maths of 30 students.

Questions

1. How many students got same grades in both the subjects?
2. How many students got a higher grade in science than in maths?
3. Which was the most common grade in science?

Science Grade \ Maths Grade	A	B	C	D	E
A	2	8			
B		1	4		
C		2	3		
D			4	2	
E		1	0	2	1

c. Mr. Dinesh collected information about the rainfall of a particular city in a week from the newspaper and recorded his information in the pictograph.

Millimeters of Rain

Sunday	💧💧💧
Monday	💧💧💧💧💧💧
Tuesday	💧💧💧💧💧
Wednesday	💧💧💧
Thursday	💧💧💧💧
Friday	💧💧💧💧💧💧💧💧💧💧
Saturday	💧💧💧💧💧💧

D1FJ5X

💧 = 2 millimeters of rain

1. On which day, the rain was the most?
2. On which day, the rain was the least?
3. How much rain was there on Sunday?
4. How much rain was there on Monday?
5. Find the total rainfall of the city in that week?

d. Neela, Mala, Kala and Bala were neighbours. The following data shows the number of fish in their fish tank respectively. Draw a pictograph to represent the data and answer the questions.

Neela	Mala	Kala	Bala
16	20	12	24

1. How may fish did bala have? _____
2. Who has 16 fish? _____
3. How many fewer fish did Kala have than Mala? _____
4. How many fish did Neela and Bala have together? _____

Answers

NUMBERS

Exercise 2.4a

1. 61,866; 41,969
2. a) 44,410 b) 2,83, 448 c) 2, 55, 404 d) 52, 738
3. 15,832
4. Rs. 64, 667
5. Rs. 47,450

Exercise 2.4 b

(a) 1) 18,872 2) 63,308 3) 1,10,398 4) 85,162

(b) 732

Exercise 2.4 d

1. a) 22,704 b) 76,988 c) 21,900 d) 17,934
   e) 16,263 f) 24,360
2. 1. Rs. 825 2. Rs.1375 3. Rs.16,675 4. Rs. 16, 875
   5. Rs.24,700

MEASUREMENTS

Exercise:4

A. 1) 705 cm 2) 50 cm 5 mm 3) 32600 cm 4) 5300 m
   5) 6m 50 m

B. a) false b) true c) false d) true
   e) false

C. 1) 69 m 750 cm 2) 165 km 450 m 3) 10 cm 7 mm

D. 1) 2 km 250 m 2) 380 m 360 mm 3) 2 km 50 m

E. 1) 2453 m 15 cm 2)151 km 800 m 3) 298 m 800 mm

F. 1) 190 km 160 m 2) 7m 110 mm 3) 43m 12cm

G. 1) 000322 2) 6 km 3) 20 poles, 30 m
4) 27 m 50 cm 5) 8 km 800 m

TIME

Exercise:5

C. 1) 7 h 20 min 2) 7 h 20 min
3) 5 h 20 min 4) 5 h 35 min
5) 7 h 15 min

D. 1) 2 hr 35 min 2) 1 hr 40 min
3) 3 hr 05 min 4) 4 hr 35 min
5) 1 hr 50 min

E. 1) 8 hr 2) 7 hr 10 min 3) 4.45 hrs
4) 6 hrs 5) 6 hr 55 min 6) 6 hr 05 min