

# LaPIS Diagnostic Test Workbook - Mathematics

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Name : Dharsini P S

Class : 7

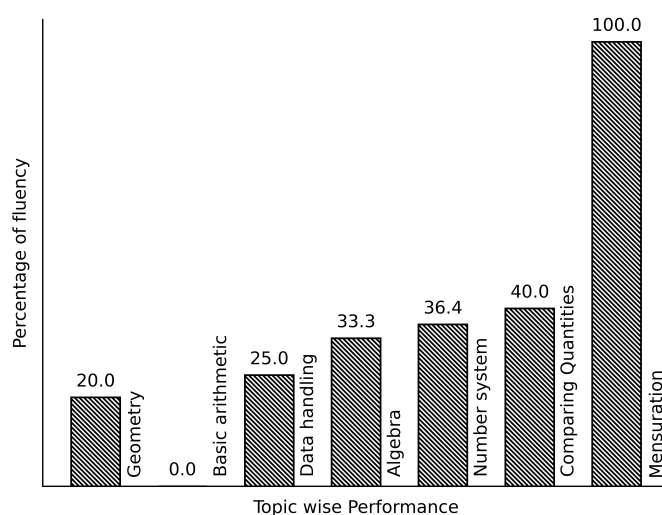
Section : C

School : AKV Public School

Login ID : AKV200

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## Dharsini P S's Performance Report



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Score: 13/40

Percentage: 32.5%

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## Dharsini P S's Study Planner

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| Date | Topics Planned | Q. Numbers | Teacher Remark | Teacher Sign | Parent Sign |
|------|----------------|------------|----------------|--------------|-------------|
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Teacher's Feedback to Student

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Class Teacher Signature

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Principal Signature

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## Basic arithmetic

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| Topics to be Improved |                                   |
|-----------------------|-----------------------------------|
| Types of angles       | Identification of types of angles |
| LCM                   | Finding LCM                       |

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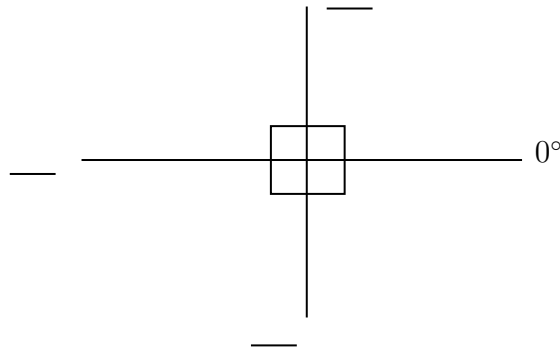
Hi, here in this video you will learn **Types of Angles**

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**Question: 1** .....

Find the angles.



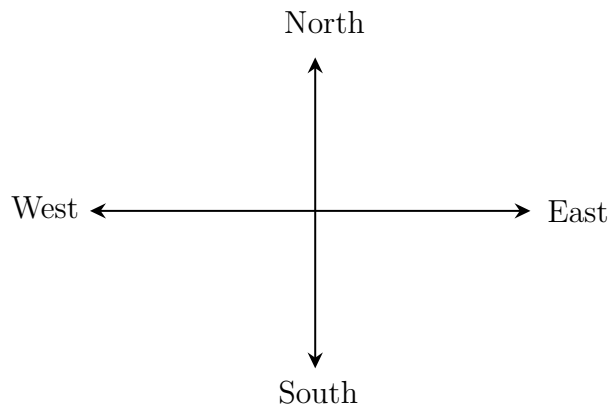
**Answer:**

The angle ranges from \_\_\_\_° to \_\_\_\_°.

The angle perpendicular to 0° is \_\_\_\_°.

The straight line measures \_\_\_\_°.

**Question: 2** .....



The angle formed between the directions

- (i) West and East is \_\_\_\_\_ angle.
- (ii) North and East is \_\_\_\_\_ angle.
- (iii) East and South is \_\_\_\_\_ angle.

**Answer:**

The angle formed between West and East is \_\_\_\_° and it is called \_\_\_\_\_ angle.  
 The angle formed between North and East is \_\_\_\_° and it is called \_\_\_\_\_ angle.  
 The angle formed between East and South is \_\_\_\_° and it is called \_\_\_\_\_ angle.

**Question: 3** .....

The addition of straight angle and right angle is \_\_\_\_\_ angle.

**Answer:**

The measurement of straight angle is \_\_\_\_\_°  
 The measurement of right angle is \_\_\_\_\_°.  
 Straight angle + Right angle = \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_  
 It is called as \_\_\_\_\_ angle.

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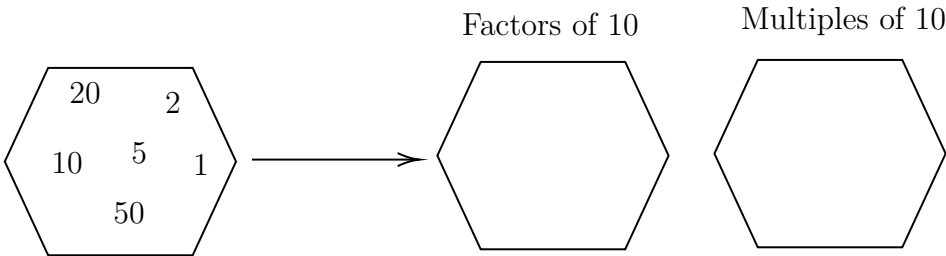
Hi, here in this video you will learn **LCM**

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**Question: 4** .....

Fill the hexagon with factors and multiples of 10.



**Answer:**

A \_\_\_\_\_ (factor/multiple) of a number is an exact divisor of that number.  
 The factors of 10 are

|               |                  |
|---------------|------------------|
| 10 x 1 = ____ | ____ x ____ = 10 |
| 2 x ____ = 10 | ____ x ____ = 10 |

Let’s find the multiple of 10

|               |               |
|---------------|---------------|
| 10 x 1 = ____ | 10 x 4 = ____ |
| 10 x 2 = ____ | 10 x 5 = ____ |
| 10 x 3 = ____ | 10 x 6 = ____ |

Therefore, factors of 10 are \_\_\_\_\_ and multiples of 10 are \_\_\_\_\_.

**Question: 5** .....

Find the LCM of 50, 100.

**Answer:**

Complete the division using least common multiple.

|          |
|----------|
| 50 , 100 |
|          |
|          |
|          |
|          |

The LCM of 50, 100 is  $2 \times 2 \times \_\_\_ \times \_\_\_$ .

**Question: 6** .....

Every number is the multiple of \_\_\_\_\_

**Answer:**

Let's find the first ten multiple of random numbers,

Multiple of 1 = \_\_\_\_\_  
Multiple of 2 = \_\_\_\_\_  
Multiple of 13 = \_\_\_\_\_  
Multiple of 20 = \_\_\_\_\_

Here, \_\_\_\_\_ is the common factor of every number.

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## Data handling

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| Topics to be Improved            |                             |
|----------------------------------|-----------------------------|
| Arithmetic mean, mode and median | Mean, Median and Mode       |
| Chance of probability            | Sample space in probability |
| Range                            | Finding the range           |

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Hi, here in this video you will learn **Mean, Median, Mode**

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**Question: 7** .....

Find the mode of the following data: 5, 15, 23, 5, 32, 44, 72, 55, 6, 3, 5, 65, 45, 67, 24, 19 and 98.

**Answer:**

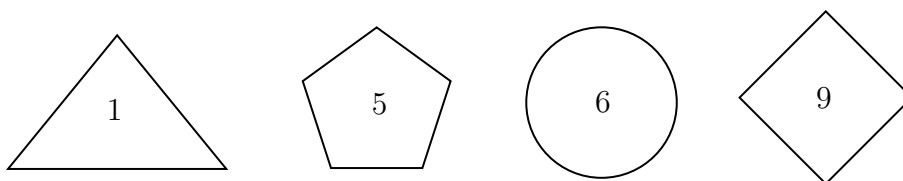
Mode is the number that occurs \_\_\_\_\_ (frequently / rarely) in a given list of observations.

Arranging the data in ascending order: \_\_\_\_\_

\_\_\_\_\_ occurs most number of times. Then, mode of the given data is \_\_\_\_\_

**Question: 8** .....

Which shape contains median of the given data 3, 5, 6, 2, 7, 9, 6, 4 and 1



**Answer:**

Median is the \_\_\_\_\_ (first/central/last) value of a data when the data is arranged in ascending or descending order.

Arrange the given data in ascending order : \_\_\_\_\_

Central value of the given data is \_\_\_\_\_ and it is the \_\_\_\_\_ of a data.

**Question: 9** .....

|                    |     |    |    |    |
|--------------------|-----|----|----|----|
| Marks scored       | 100 | 90 | 80 | 70 |
| Number of students | 4   | 5  | 2  | 1  |

Mean = \_\_\_\_\_ , Median = \_\_\_\_\_ and Mode = \_\_\_\_\_.

**Answer:**

Mean =  $\frac{\text{sum of all observation}}{\text{number of observation}}$ .

Here s sum of all observation = \_\_\_\_\_ , number of observation = \_\_\_\_\_

Therefore, mean = \_\_\_\_\_

Arrange the data in ascending order : \_\_\_\_\_

Here, median = \_\_\_\_\_ , mode = \_\_\_\_\_.

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Hi, here in this video you will learn **Basics of probability**

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**Question: 10** .....

Which of the following contains list of all possible outcomes.

Probability

Sample space

Sure events

Impossible events

**Answer:**

Probability is the measure of \_\_\_\_\_ ( chance /number) of an events happenings.

Sample space consists of \_\_\_\_\_ ( possible/ impossible) outcomes.

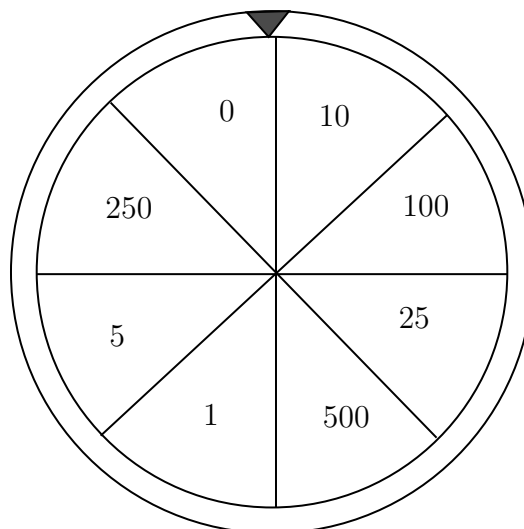
Sure events always \_\_\_\_\_ (occurs/don't occurs).

Impossible events \_\_\_\_\_ (occurs/ don't occurs).

Therefore, \_\_\_\_\_ contains list of possible outcomes.

**Question: 11** .....

Write the possible outcomes while spinning the given wheel.



**Answer:**

Outcomes are \_\_\_\_\_ (possible/impossible) results of an experiment.

The possible outcomes while spinning wheel are ₹0, ₹10, \_\_\_\_\_

**Question: 12** .....

A bag contains three balls of colour blue, green and red. Write the possible outcomes if two balls are taken out.

**Answer:**

A bag contains \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ balls.

If one of the ball is blue in colour, then other ball can be \_\_\_\_\_ or \_\_\_\_\_

If one of the ball is green in colour, then other ball can be \_\_\_\_\_ or \_\_\_\_\_.

If one of the ball is red in colour, then other ball can be \_\_\_\_\_ or \_\_\_\_\_.

Therefore, if two balls are taken out then possible outcomes are blue + \_\_\_\_\_ ,  
\_\_\_\_\_ + \_\_\_\_\_, \_\_\_\_\_ + \_\_\_\_\_,

Hi, here in this video you will learn **Range**



**Question: 13** .....

Range of the data = \_\_\_\_\_ - \_\_\_\_\_

**Answer:**

The difference between highest value and lowest value is \_\_\_\_\_.

Example: Find the range of 10, 5, 30, 23, 54, 39 and 16

Highest value = \_\_\_\_\_ , Lowest value = \_\_\_\_\_ .

Range = \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_.

**Question: 14** .....

Circle the correct range for the following data 31, -20, 35, -38, 29, 0, 43, -25, 51, 14, 9

$$-20 + 51 \qquad \frac{-38-51}{2} \qquad 51 + 38 \qquad \frac{51+20}{2}$$

**Answer:**

Range = \_\_\_\_\_ - \_\_\_\_\_.

Arranging the data in ascending order, \_\_\_\_\_

In the given data,

Highest value = \_\_\_\_\_ , Lowest value = \_\_\_\_\_ , Range = \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

**Question: 15** .....

Find the range of first 10 multiple of 5.

**Answer:**

First 10 multiple of 5 = \_\_\_\_\_

Therefore,

Highest value = \_\_\_\_\_ , Lowest value = \_\_\_\_\_ , Range = \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_



# Geometry

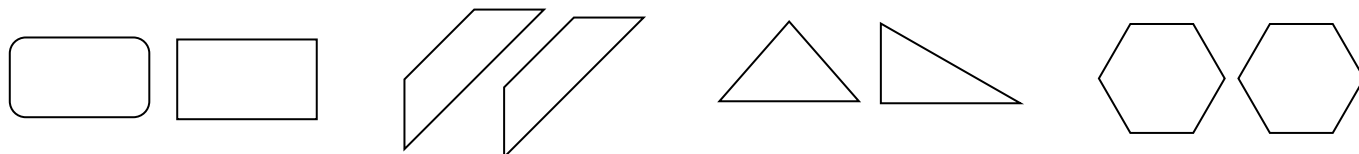
| Topics to be Improved                        |   |
|--|---|
| Criteria for congruence of triangle          | Identification of criteria of congruence of triangles |
| Angle sum property of triangle               | Angle sum property of triangle                        |
| Related angles                               | Complementary angles                                  |
| Types of triangle                            | Basics of types of triangle (sides)                   |
| Right angle triangle and pythagoras property | Basics of Pythagoras property                         |
| Sum of lengths of two sides of a triangle    | Sum of two sides of a triangle                        |
| Transversal angle made by transversal        | Basics of Transversal angle                           |
| Faces vertex and edges                       | Identification of faces, edges and vertices           |

Hi, here in this video you will learn **Criteria of congruence**



**Question: 16** .....

Circle the groups that contain congruent images.



**Answer:**

Two geometrical shapes are said to be congruent if they are \_\_\_\_\_ (identical/non-identical) in shapes and size.

Example: Square and Rectangle are \_\_\_\_\_ (congruent/not congruent).

**Question: 17** .....

If the three sides of the triangle are equal to the corresponding sides of the other triangle, then two triangles are congruent under \_\_\_\_\_ (SSS/ASA/SAS) criteria .

**Answer:**

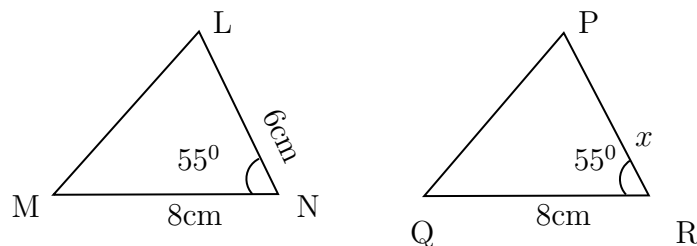
Two triangle are \_\_\_\_\_ (congruent/not congruent) if they are identical in shapes and size. Criteria for congruence of triangles are SSS, \_\_\_\_\_ and \_\_\_\_\_.

1. In SSS Congruence criteria - \_\_\_\_ (2/ 3/ 5) sides of the triangle are \_\_\_\_\_ (equal/ not equal) to the three corresponding sides of the other triangle.
2. In SAS Congruence criteria - \_\_\_\_ (2/ 3/ 5) sides and \_\_\_\_\_ (one/two) angle between them are equal to the corresponding sides and the included angle of the other triangle.
3. In ASA Congruence criteria - \_\_\_\_ (2/ 3/ 5) angles and \_\_\_\_\_ (one/two) side between them are equal to the corresponding angles and the included side of the other triangle.

|     |  |
|-----|--|
| SSS | _____ sides and _____ angles are equal |
| SAS | _____ sides and _____ angles are equal |
| ASA | _____ sides and _____ angles are equal |

**Question: 18** .....

The triangles LNM and PRQ are congruent by SAS criteria. Then find the side PR



**Answer:**

The given two triangles satisfy \_\_\_\_\_ criteria of congruence.  
 By SAS congruence criteria,  $MN =$  \_\_\_\_\_, \_\_\_\_\_ and  $\angle N =$  \_\_\_\_\_  
 The side  $MN = 8$  cm in  $\triangle LNM$  is equal to the side \_\_\_\_\_ in  $\triangle PRQ$   
 The common included angle in  $\triangle LNM$  and  $\triangle PRQ$  are \_\_\_\_\_  
 The side  $PR$  is equal to the side in \_\_\_\_\_  $\triangle LNM$ .  
 Therefore, length of side  $PR =$  \_\_\_\_\_

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Hi, here in this video you will learn **Angle sum property**

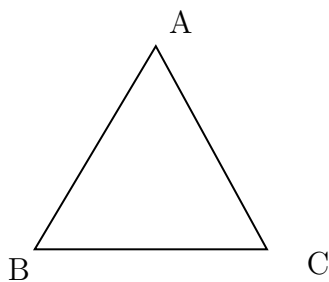
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**Question: 19** .....

Sum of the angles of triangle is \_\_\_\_\_.

**Answer:**



$$\angle A + \angle B + \angle C = \underline{\hspace{2cm}}$$

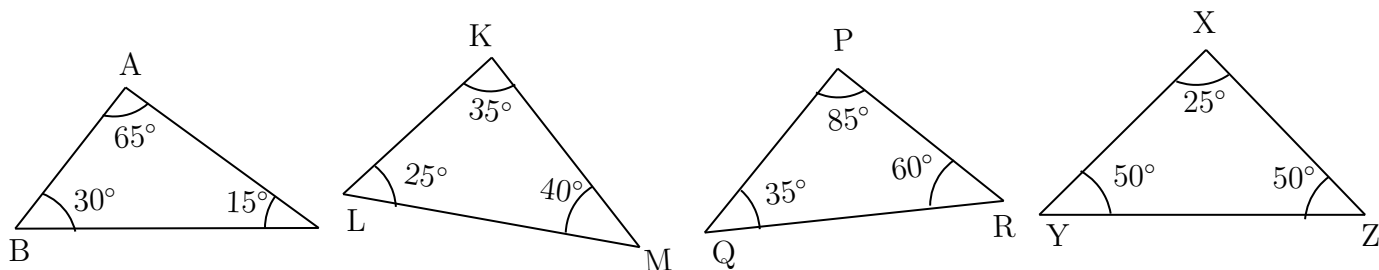
Angle sum formula =  $(n - 2) \times 180^\circ$ ,  $n$  = number of sides

Triangle has  $\underline{\hspace{2cm}}$  sides.

Sum of the angles of triangle =  $(\underline{\hspace{2cm}} - 2) \times 180^\circ = \underline{\hspace{2cm}}$

**Question: 20** .....

Which of the following triangle satisfy the angle sum property.



**Answer:**

Angle sum property of triangle: sum of the angles of a triangle is  $\underline{\hspace{2cm}}$

In  $\triangle ABC$ , Sum of the angles =  $\angle A + \angle B + \angle C = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

In  $\triangle PQR$ , Sum of the angles =  $\underline{\hspace{2cm}} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

In  $\triangle KLM$ , Sum of the angles =  $\underline{\hspace{2cm}} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

In  $\triangle XYZ$ , Sum of the angles =  $\underline{\hspace{2cm}} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Therefore, the triangles that satisfy the angle sum property are =  $\underline{\hspace{2cm}}$

**Question: 21** .....

Find the angles of triangle, if their angles are in the ratio 8:6:4.

**Answer:**

Ratio of angles in the triangle is  $\underline{\hspace{2cm}}$

Let's consider the angles of triangle be  $8x$ ,  $\underline{\hspace{2cm}}$  and  $\underline{\hspace{2cm}}$

We know sum of the angles of a triangle is  $\underline{\hspace{2cm}}$

Therefore,  $8x + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 180^\circ$ . The value of  $x = \underline{\hspace{2cm}}$

The angles of the triangle are  $\underline{\hspace{2cm}}$

Hi, here in this video you will learn **Related Angles**



**Question: 22** .....

1. Two angles are complementary if their sum is equal to \_\_\_\_\_.
2. Two angles are supplementary if their sum is equal to \_\_\_\_\_.

**Answer:**

1. When sum of the two angles is equal to  $90^\circ$ , they are called as \_\_\_\_\_ angle.  
Example :  $45^\circ$  and  $45^\circ$ , \_\_\_\_\_, and \_\_\_\_\_.
2. When sum of the two angles is equal to  $180^\circ$ , they are called as \_\_\_\_\_ angle.  
Example :  $90^\circ$  and  $90^\circ$ , \_\_\_\_\_, and \_\_\_\_\_.

**Question: 23** .....

Shade the complementary angles.

|                      |                      |                     |                       |                      |                      |
|----------------------|----------------------|---------------------|-----------------------|----------------------|----------------------|
| $85^\circ, 95^\circ$ | $45^\circ, 45^\circ$ | $6^\circ, 84^\circ$ | $73^\circ, 107^\circ$ | $36^\circ, 64^\circ$ | $90^\circ, 90^\circ$ |
|----------------------|----------------------|---------------------|-----------------------|----------------------|----------------------|

**Answer:**

Two angles are said be complementary if the sum of their angles are equal to \_\_\_\_\_.

- $85^\circ + 95^\circ =$  \_\_\_\_\_ and this is \_\_\_\_\_ (a / not a) complementary angles.  
 $45^\circ + 45^\circ =$  \_\_\_\_\_ and this is \_\_\_\_\_ angles.  
 $6^\circ + 84^\circ =$  \_\_\_\_\_ and this is \_\_\_\_\_ angles.  
 $73^\circ + 107^\circ =$  \_\_\_\_\_ and this is \_\_\_\_\_ angles.  
 $36^\circ + 64^\circ =$  \_\_\_\_\_ and this is \_\_\_\_\_ angles.  
 $90^\circ + 90^\circ =$  \_\_\_\_\_ and this is \_\_\_\_\_ angles.

**Question: 24** .....

Find the complement and supplement of  $15^\circ$  and  $90^\circ$

**Answer:**

One angle is \_\_\_\_\_ (complements / supplements) to other angle, when sum of the two angles is equal to  $90^\circ$ .  
 One angle is \_\_\_\_\_ (complements / supplements) to other angle, when sum of the two angles is equal to  $180^\circ$ .

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Complement of $15^\circ =$ _____, | Complement of $90^\circ =$ _____. |
| Supplement of $15^\circ =$ _____, | Supplement of $90^\circ =$ _____  |

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Hi, here in this video you will learn **Types of triangle**

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**Question: 25** .....

Polygon with three sides is called as \_\_\_\_\_.

**Answer:**

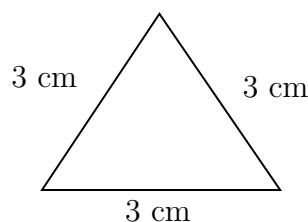
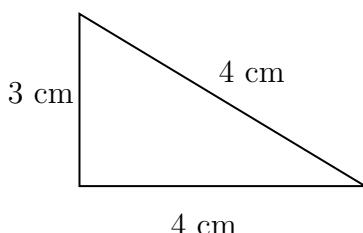
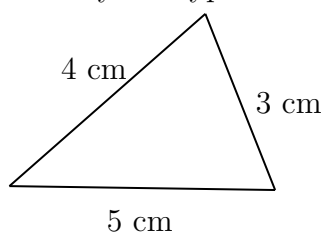
A polygon is a simple \_\_\_\_\_ (open / closed ) curve made up of only line segments.

Polygon with three sides is called \_\_\_\_\_.

Draw a diagram of polygon with three sides :

**Question: 26** .....

Identify the types of triangles.



**Answer:**

Triangle has \_\_\_\_\_ sides.

- Triangle with all sides are equal is called \_\_\_\_\_ triangle.
- Triangle with two sides of equal length is called \_\_\_\_\_ triangle.
- Triangle with three sides of different length is called \_\_\_\_\_ triangle.

**Question: 27** .....

A park is in the shape of an isosceles triangle. If side length of the park is 30ft and 60ft. then the possible length of third side of park can be \_\_\_\_\_.

**Answer:**

The shape of the park is \_\_\_\_\_ .

The shapes has \_\_\_\_\_ sides and this shape has \_\_\_\_\_ sides of equal length.

Given: length of sides of park is \_\_\_\_\_.

The possible length of third side is \_\_\_\_\_.

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Hi, here in this video you will learn **Pythagoras property**

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**Question: 28** .....

In a right angled triangle, square of the \_\_\_\_\_ = sum of the squares of the legs.

**Answer:**

Pythagoras theorem is only applicable for \_\_\_\_\_ triangle.

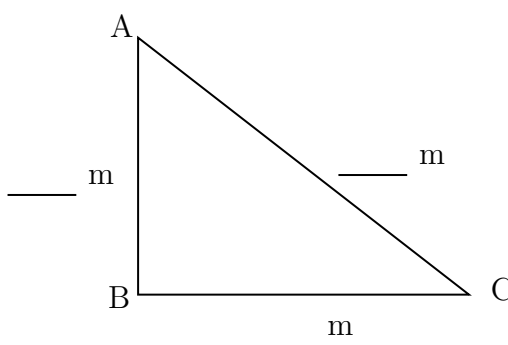
Longest side of the triangle is \_\_\_\_\_ (hypotenuse/ legs) and other two sides are called \_\_\_\_\_ (hypotenuse/ legs).

Pythagoras theorem states that \_\_\_\_\_.

**Question: 29** .....

Find the hypotenuse of the triangle ABC if base is 12 m and altitude is 5 m.

**Answer:**



Pythagoras theorem states that square of the \_\_\_\_\_ = sum of the squares of its \_\_\_\_\_.

Given: Base = \_\_\_\_\_, Altitude = \_\_\_\_\_,

Base and altitude are \_\_\_\_\_ (hypotenuse/ legs) of the triangle.

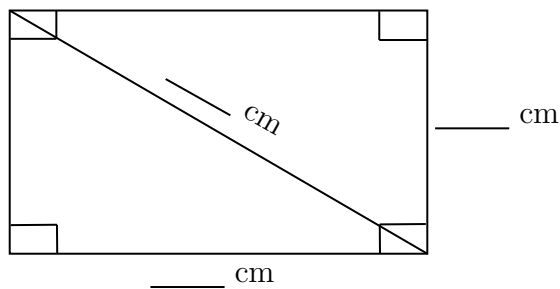
By Pythagoras theorem,  $(\text{_____})^2 = (\text{_____})^2 + (\text{_____})^2$   
 $\text{_____} = \text{_____} + \text{_____}$

Therefore, hypotenuse of the triangle is \_\_\_\_\_.

**Question: 30** .....

Find the length of the rectangle, if breadth is 3 cm and diagonal is 5 cm.

**Answer:**



Pythagoras theorem states that square on the \_\_\_\_\_ = sum of the squares on \_\_\_\_\_.

Is Pythagoras theorem applicable in rectangle? \_\_\_\_ ( yes/ no).

Given: breadth = \_\_\_\_\_, length of diagonal = \_\_\_\_\_

By Pythagoras theorem,  $(\text{_____})^2 = (\text{_____})^2 + (\text{_____})^2$   
 $\text{_____} = \text{_____} + \text{_____}$

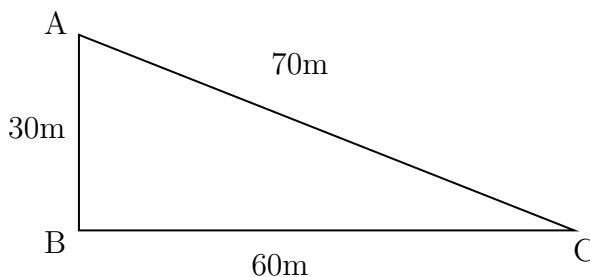
Therefore, diagonal of the rectangle is \_\_\_\_\_

Hi, here in this video you will learn **Sum of the length of sides of the triangle**



**Question: 31** .....

Find the greatest distance to reach C from A in the given diagram.



**Answer:**

The sides of the given triangle are \_\_\_\_\_.

The possible way to reach point C from point A are \_\_\_\_\_ and AB then to \_\_\_\_\_

Side AC = \_\_\_\_\_

Side AB + BC = \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

Therefore, the greatest distance to reach C from A in the given diagram is \_\_\_\_\_.

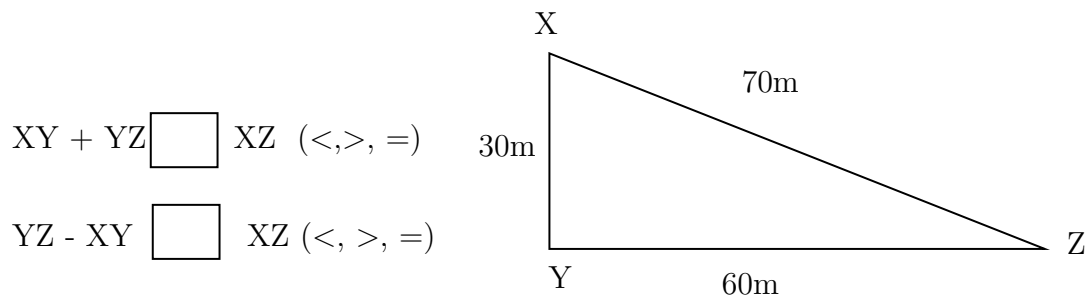
**Question: 32** .....

\_\_\_\_\_ (Sum of / Difference between) the length of any two sides of a triangle is smaller than the length of the third side.

**Answer:**

There are \_\_\_\_\_ sides in a triangle.

The sum of the two sides of a triangle is \_\_\_\_\_ than the other side of the triangle.  
 The difference of the two sides of a triangle is \_\_\_\_\_ than the other side of the triangle.  
 Example: In triangle XYZ,



**Question: 33** .....

The lengths of two sides of a triangle are 7 cm and 10 cm. Between which two numbers can length of the third side fall?

**Answer:**

- The sum of the two sides of a triangle is \_\_\_\_\_ than the third side of the triangle.  
 Therefore, the third side should be \_\_\_\_\_ (less/ greater) than sum of other two sides.  
 Here, sum of the two sides = \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_  
 Therefore, the length of the third side is less than \_\_\_\_\_
- The difference of the two sides of a triangle is \_\_\_\_\_ than the third side of the triangle.  
 Therefore, the third side should be \_\_\_\_\_ (less/ greater) than sum of other two sides.  
 Here, difference of the two sides = \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_  
 Therefore, the length of the third side is greater than \_\_\_\_\_

Therefore, length of the third side is greater than \_\_\_\_\_ but less than \_\_\_\_\_.

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Hi, here in this video you will learn **Basics of Transversal angle**

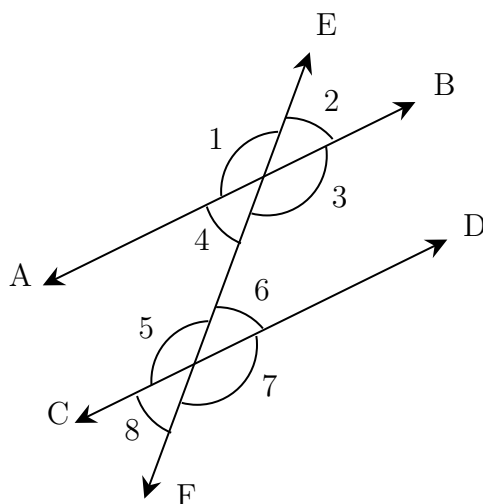
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**Question: 34** .....

In given diagram,  $\angle 1$  and  $\angle 7$  are \_\_\_\_\_ (alternate / corresponding) angles.





**Answer:**

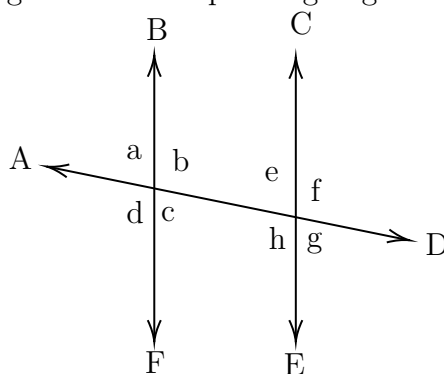
A line that intersects two or more lines at distinct points is called a \_\_\_\_\_ (transversal/Intersecting line).

Angle that lies on different vertices and on the opposite sides of transversal is \_\_\_\_\_ angles.

Angle that lies on different vertices and on the same sides of transversal is \_\_\_\_\_ angles. Therefore,  $\angle 1$  and  $\angle 7$  are \_\_\_\_\_

**Question: 35** .....

Find the transversal, alternate angles and corresponding angles in a given diagram.



**Answer:**

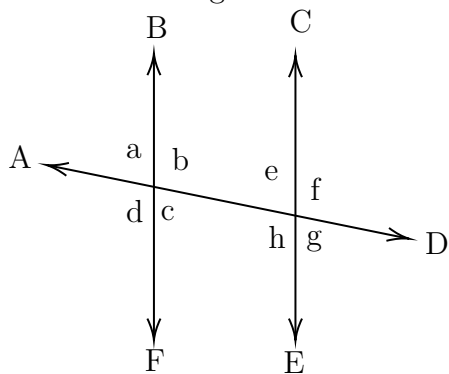
A line that intersects two or more lines at distinct points is called a \_\_\_\_\_ (transversal/Intersecting line).

In a given diagram, \_\_\_\_\_ is a transversal line. (BF/AD/CE)

| Alternate angles  | Corresponding angles                                    |
|---|---|
| $\angle a$ and $\angle g$ , $\angle b$ and $\angle h$ , | $\angle a$ and $\angle e$ , $\angle b$ and $\angle f$ , |
|   |   |

**Question: 36** .....

Find  $\angle e$  and  $\angle g$  if  $\angle a = 30^\circ$ .



**Answer:**

When parallel lines cut by a transversal,

(i) Alternate angles are \_\_\_\_\_ (equal / not equal).

(ii) Corresponding angles are \_\_\_\_\_ (equal / not equal).

Here, alternate angle of  $\angle a$  is \_\_\_\_\_ and its value is \_\_\_\_\_.

Corresponding angle of  $\angle a$  is \_\_\_\_\_ and its value is \_\_\_\_\_.

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Hi, here in this video you will learn **Basics of 3D model**

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**Question: 37** .....

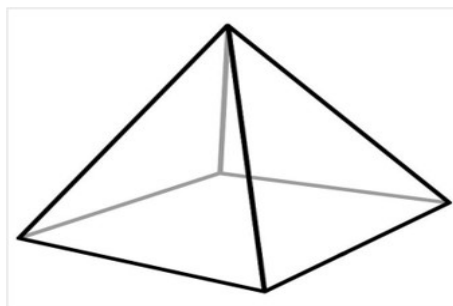
A point at which two or more lines segments meet is called \_\_\_\_\_ (Vertex/ edges/ faces).

**Answer:**

\_\_\_\_\_ has two end point (line/line segment/ray).

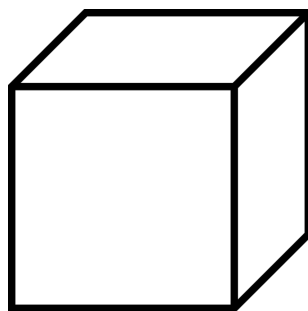
A \_\_\_\_\_ is a point where two or more line segments meet (Vertex/ edges/ faces).

Mark the vertices in the diagram,



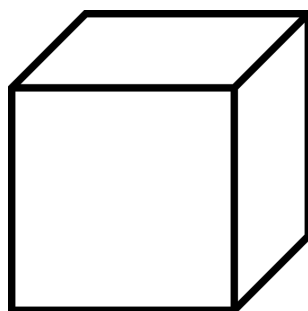
**Question: 38** .....

Mark and find the number of vertices, edges and faces in a cube.



**Answer:**

Mark the vertex, edges and faces in a cube.



Count the number of vertex, edges and faces in a cube.

Cube have \_\_\_\_\_ vertices, \_\_\_\_\_ edges and \_\_\_\_\_ faces.

**Question: 39** .....

How many vertices, edges and faces does dices have?



**Answer:**

The shape of dice is \_\_\_\_\_.

Dices have \_\_\_\_\_ vertices, \_\_\_\_\_ edges and \_\_\_\_\_ faces.

# Number system

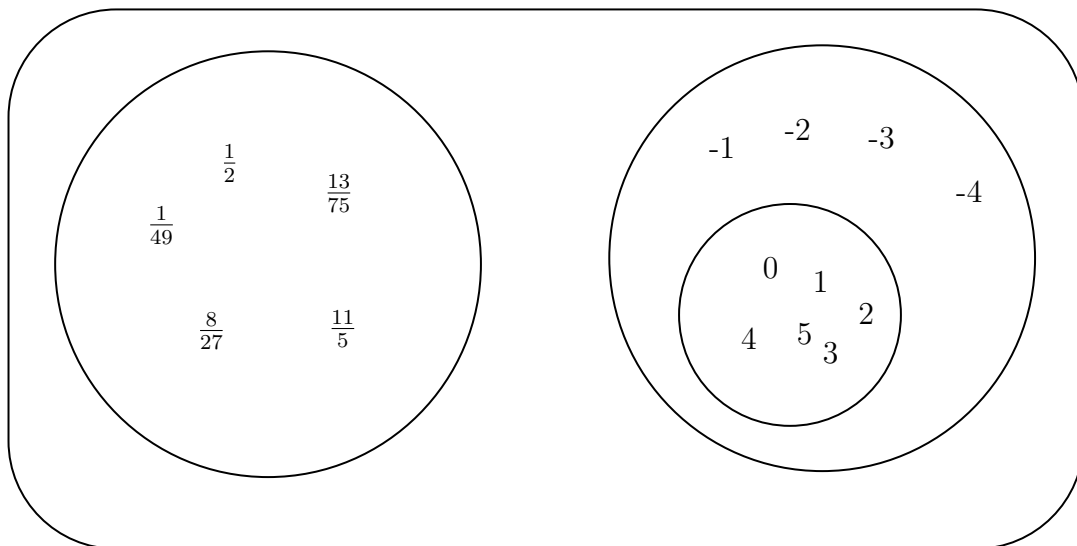
| Topics to be Improved                  |   |
|--|---|
| Introduction to rational numbers       | Basics of rational numbers                  |
| Integers                               | Basics of integers                          |
| Positive and negative rational numbers | Identification of positive rational numbers |
| Properties of integers                 | Associative property                        |
| Exponents                              | Solving exponents                           |
| Fractions                              | Division of fraction                        |
| Decimals                               | Multiplication and division of decimals     |

Hi, here in this video you will learn **Basics of rational numbers**



**Question: 40** .....

The numbers in the diagram represents\_\_\_\_\_.



**Answer:**

0, 4, 5, 2, 3, 1 are \_\_\_\_\_ numbers.

-1, -2, -3, -4 are \_\_\_\_\_ numbers.

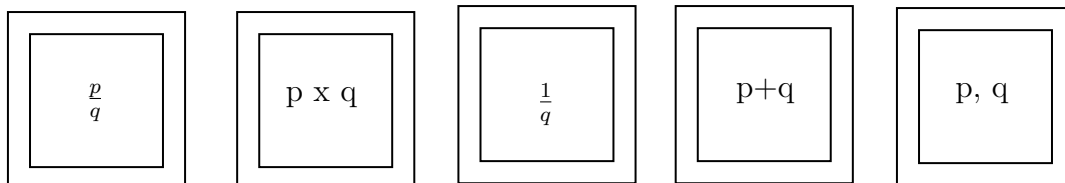
The combination of these circles are called \_\_\_\_\_.

$\frac{1}{49}$ ,  $\frac{1}{2}$ ,  $\frac{8}{27}$ ,  $\frac{11}{5}$ ,  $\frac{13}{75}$  are \_\_\_\_\_.

Combination of all three circles are called as \_\_\_\_\_ numbers.

**Question: 41** .....

Shade the correct form of rational numbers.



**Answer:**

Rational number can be expressed as \_\_\_\_\_, where both numerator and denominator are \_\_\_\_\_ (integer/ not a integer), denominator is equal to \_\_\_\_\_ ( zero/ one/ any integer other than zero).

**Question: 42** .....

Circle the number which is not a rational number.

$\frac{-5}{-8}$     $\frac{-3}{2}$     $\frac{12}{-6}$     $\frac{0}{-9}$    256    $\frac{4}{0}$

**Answer:**

Rational number can be expressed as \_\_\_\_\_, where both numerator and denominator are \_\_\_\_\_ (integer/ not a integer), denominator is equal to \_\_\_\_\_ ( zero/ one/ any integer other than zero).

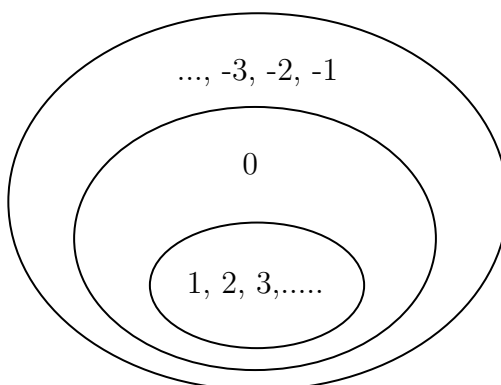
Here, \_\_\_\_\_ is/are rational number and \_\_\_\_\_ is/are not a rational number.

Hi, here in this video you will learn **Basics of integers**



**Question: 43** .....

Highlight the ring that contains whole numbers.



**Answer:**

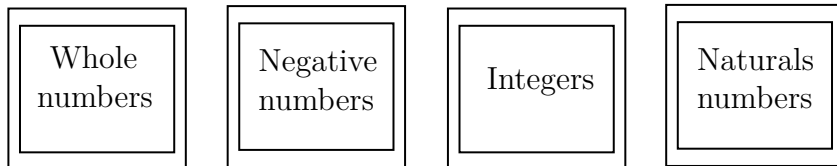
The numbers inside the inner ring (1, 2, 3,.....) are \_\_\_\_\_ numbers.

The numbers inside the middle ring are \_\_\_\_\_ numbers.

The numbers inside the outer ring are negative numbers, positive numbers and zero and they are called as \_\_\_\_\_.

**Question: 44** .....

Colour the frame of the box which contains the number 1, 4 and -10



**Answer:**

Whole number consists of 0,1,2,3,4,..... Negative number consists of \_\_\_\_\_.

Natural numbers consists of \_\_\_\_\_. Integers consists of \_\_\_\_\_.

Now, 1, 4, -10 are in \_\_\_\_\_.

**Question: 45** .....

State whether the statement is true or false.

Every positive number is an integer.

**Answer:**

Positive numbers are \_\_\_\_\_. Integers consists of \_\_\_\_\_.

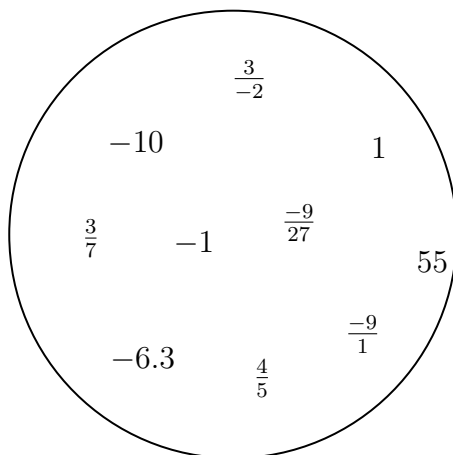
Therefore, positive numbers are \_\_\_\_\_ (in/not in) integers.

Hi, here in this video you will learn **Positive and Negative rational numbers**



**Question: 46** .....

Segregate positive and negative rational number.



**Answer:**

- If both the numerator and the denominator of a rational number are \_\_\_\_\_ (positive/negative), then it is positive rational number.
- If either the numerator and the denominator of a rational number are negative, then it is \_\_\_\_\_ (positive/negative) rational number.

In the given circle, positive rational numbers are \_\_\_\_\_ and negative rational numbers are \_\_\_\_\_.

**Question: 47** .....

$\frac{-3}{-4}$  is a \_\_\_\_\_ (positive /negative / neither positive nor negative) rational number.

**Answer:**

-3 is a \_\_\_\_\_ number, -4 is a \_\_\_\_\_ number.

Division of  $\frac{-3}{-4} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$  and this \_\_\_\_\_ rational number.

(Positive / Negative / Neither positive nor negative rational number)

**Question: 48** .....

The product of a positive rational number and a negative rational number is \_\_\_\_\_ rational number. (Positive/ Negative/ neither positive nor negative)

**Answer:**

Examples for positive rational numbers: \_\_\_\_\_

Examples for negative rational numbers: \_\_\_\_\_

Positive rational number  $\times$  Negative rational number = \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ and this is \_\_\_\_\_ rational number

---

Hi, here in this video you will learn **Properties of integers**

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**Question: 49** .....

Match the following based on the properties of integers

|     |             |
|-----|-------------|
| i   | Closure     |
| ii  | Associative |
| iii | Commutative |
| iv  | Identity    |

|   |                             |
|---|-----------------------------|
| a | $(5 + 7) + 3 = 3 + (7 + 5)$ |
| b | $21 + 0 = 21$               |
| c | $15 + 17 = 32$              |
| d | $1 + 99 = 99 + 1$           |

**Answer:**

(i) Closure property :

The sum of integers is always \_\_\_\_\_ ( integer / not a integer).

Therefore, \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

From the given option \_\_\_\_\_ satisfies the closure property.

- (ii) Associative property :  
 Rearranging the parentheses ( brackets) \_\_\_\_\_ (does not/ does) change the sum.  
 Therefore,  $(a + b) + c =$  \_\_\_\_\_.  
 From the given option \_\_\_\_\_ satisfies the Associative property.
- (iii) Commutative property :  
 Changing the order of the addends \_\_\_\_\_ (does not/ does) change the sum.  
 Therefore,  $a + b =$  \_\_\_\_\_ + \_\_\_\_\_  
 From the given option \_\_\_\_\_ satisfies the Commutative property.
- (iv) Identity property : The sum of \_\_\_\_\_ and any number always returns same number.  
 Therefore,  $a +$  \_\_\_\_\_ = a  
 From the given option \_\_\_\_\_ satisfies the Identity property.

**Question: 50** .....

Mark the operations in which commutative property holds true for any two integers.

Addition                      Subtraction                      Multiplication                      Division

**Answer:**

In commutative property, changing the \_\_\_\_\_ (order/ brackets) of the operands \_\_\_\_\_ (does not/ does) change the result.  
 For any two integers, commutative property holds true for \_\_\_\_\_.  
 The commutative property for addition is \_\_\_\_\_.  
 The commutative property for multiplication is \_\_\_\_\_.

**Question: 51** .....

Are additive identity and multiplicative identity the same? (Yes or No)

**Answer:**

Identity property holds only for \_\_\_\_\_ , \_\_\_\_\_  
 The Identity property for addition is \_\_\_\_\_ and additive identity is \_\_\_\_\_.  
 The Identity property for multiplication is \_\_\_\_\_ and multiplicative identity is \_\_\_\_\_.  
 Therefore, additive identity is \_\_\_\_\_ ( equal / not equal) to multiplicative identity.

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Hi, here in this video you will learn **Exponents and power**

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**Question: 52** .....

Find the exponential form of 1000.

**Answer:**

\_\_\_\_\_ (Exponents/Base) tells us how many times a number should be multiplied by itself to get the desired result.



Exponents is also called as \_\_\_\_\_ (Base / Power).

1000 can be written as  $= 10 \times \text{_____} \times \text{_____}$   
10 is raised to the power of  $\text{___} = (10)\text{---}$

**Question: 53** .....

Find the value of  $(-2)^3$ .

**Answer:**

\_\_\_\_\_ (Exponents/Base) tells us how many times a number should be multiplied by itself to get the desired result.

In this exponential form  $(-2)^3$ , base = \_\_\_\_\_, power = \_\_\_\_\_.  
 $(-2)^3 = \text{___} \times \text{___} \times \text{___} = \text{___}$ .

**Question: 54** .....

- (i) Tenth power of 100 is \_\_\_\_\_ ( $(10)^{100}$  or  $(100)^{10}$ ).  
(ii)  $k$  is raised to the power of 5 is \_\_\_\_\_ ( $(k)^5$  or  $(5)^k$ ).

**Answer:**

Exponential form = (Base)---

- (i) Tenth power of 100 : Base = \_\_\_\_\_, Power/Exponents = \_\_\_\_\_, exponential form = \_\_\_\_\_.  
(ii)  $k$  is raised to the power of 5 : Base = \_\_\_\_\_, Power/Exponent = \_\_\_\_\_, exponential form = \_\_\_\_\_.

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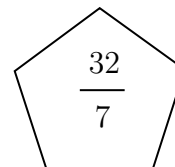
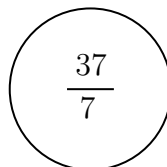
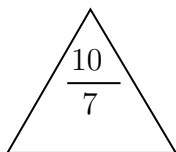
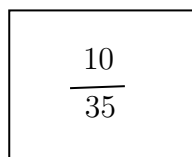
Hi, here in this video you will learn **Division on fractions**

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**Question: 55** .....

Find the shape which contains the improper fraction of  $5\frac{2}{7}$ .



**Answer:**

$5\frac{2}{7}$  is a \_\_\_\_\_ (proper/mixed) fraction.

Here, 5 is \_\_\_\_\_, 2 is \_\_\_\_\_ and 7 is \_\_\_\_\_.

To convert mixed fraction into improper fraction,  $\frac{(\text{Whole} \times \text{Denominator}) + \text{Numerator}}{\text{Denominator}}$

$$5\frac{2}{7} = \frac{(\text{ } \times \text{ } ) + \text{ } }{7} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

**Question: 56** .....

Solve:  $\frac{1}{3} \div \frac{14}{3}$

**Answer:**

To divide a fraction by another fraction, multiply the dividend by \_\_\_\_\_ ( same / reciprocal) of the divisor. Here, dividend = \_\_\_\_\_ and divisor = \_\_\_\_\_.

$$\frac{1}{3} \div \frac{14}{3} = \frac{1}{3} \times \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

**Question: 57** .....

Find the half of the fraction  $\frac{12}{40}$ .

**Answer:**

To find half of a number, divide the number by \_\_\_\_\_

$$\frac{12}{40} \div \text{ } = \frac{12}{40} \times \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

Then the answer is \_\_\_\_\_

Hi, here in this video you will learn **Basics of decimals**



**Question: 58** .....

Shade 0.4 part of the given shape.

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

**Answer:**

There are \_\_\_\_\_ boxes.

0.4 can be expressed as \_\_\_\_\_ in fraction

This fraction represents \_\_\_\_\_ parts out of \_\_\_\_\_ equal parts.

So, we need to shade \_\_\_\_\_ boxes out of \_\_\_\_\_ boxes.

**Question: 59** .....

Solve the following.

(i)  $0.4 \times 1.2$

(ii)  $0.48 \times 1.2$

**Answer:**

(i)  $0.4 \times 1.2$  :

Multiplication of  $0.4 \times 1.2$  assuming there is no decimal point is \_\_\_\_\_.

The number of digits after decimal point in 0.4 is \_\_\_\_\_ and 1.2 is \_\_\_\_\_.

Total digits after decimal point in the product of two numbers is \_\_\_\_\_.

Count that digits from the right towards left and place the decimal point, the result is \_\_\_\_\_.

(ii)  $0.48 \times 1.2$ :

Multiplication of  $0.48 \times 1.2$  assuming there is no decimal point is \_\_\_\_\_.

The number of digits after decimal point in 0.48 is \_\_\_\_\_ and 1.2 is \_\_\_\_\_.

Total digits after decimal point in the product of two numbers is \_\_\_\_\_.

Count that digits from the right towards left and place the decimal point, the result is \_\_\_\_\_.

**Question: 60** .....

One box of chocolate costs Rs.20.10. What is the cost of 15 chocolates, if a box contains 10 chocolates?

**Answer:**

One box contains \_\_\_\_\_ chocolates. The cost of one box is \_\_\_\_\_

Then cost of one chocolate = \_\_\_\_\_  $\div$  \_\_\_\_\_ = \_\_\_\_\_

(i) Total digits after decimal point in decimal number = \_\_\_\_\_

(ii) Divide the two numbers assuming there is no decimal point.

$$\frac{2010}{15} = \underline{\hspace{2cm}}$$

(iii) Place the decimal point after \_\_\_\_\_ digits counting from the right in the quotient after division.

Then the cost of one chocolate is \_\_\_\_\_ .

The cost of 15 chocolates = cost of one chocolate  $\times$  \_\_\_\_\_ = \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

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## Comparing Quantities

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| Topics to be Improved |                                |
|-----------------------|--------------------------------|
| Percentage            | Basic of percentage            |
| Profit and loss       | Prediction of loss and profit  |
| Simple interest       | Calculation of simple interest |

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Hi, here in this video you will learn **Basics of percentage**

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**Question: 61** .....

2% can be written as

**Answer:**

Percentages are numerators of fractions with denominator\_\_\_\_\_

$$2\% = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

**Question: 62** .....

Arun attended the LaPIS test for 100 marks and got 75% marks. What is the mark scored by Arun?

**Answer:**

Arun attended LaPIS test for \_\_\_\_\_ marks. He got \_\_\_\_\_ marks.

75 % can be written in fraction form  $\frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

Then the mark scored by Arun = Total mark  $\times$  75% = \_\_\_\_\_  $\times \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$  = \_\_\_\_\_

**Question: 63** .....

There are 25 apples in a basket in which 10 of them are rotten. Find the percentage of rotten apples.

**Answer:**

There are \_\_\_\_\_ apples in a basket.

Number of rotten apples are \_\_\_\_\_ .

Fraction form of rotten apples in a basket =  $\frac{\square}{\square}$

Convert it into a percent = \_\_\_\_\_ x \_\_\_\_\_% = \_\_\_\_\_

Hi, here in this video you will learn **Profit and Loss**



**Question: 64** .....

Anu bought a book for ₹100 and sold it for ₹150 . Here, cost price of a book is \_\_\_\_\_ and selling price of a book is \_\_\_\_\_

**Answer:**

The price that is paid to buy or purchase a goods is \_\_\_\_\_ price and the price at which goods are sold is called \_\_\_\_\_ price.

Therefore, cost price of a book = \_\_\_\_\_, selling price of a book = \_\_\_\_\_.

**Question: 65** .....

You bought a bat for ₹50 to play cricket. After one week, you sold that bat for ₹150. Is that a profit or loss for you?

**Answer:**

In profit, selling price \_\_\_\_\_ cost price. ( <, >, = )

In loss, selling price \_\_\_\_\_ cost price. ( <, >, = )

Cost price of a bat = \_\_\_\_\_, selling price of a bat = \_\_\_\_\_.

Cost price is \_\_\_\_\_ ( greater / smaller ) than selling price. Then it is \_\_\_\_\_.

**Question: 66** .....

Janu bought a smart phone for Rs.19,499 and after one week she sold her phone at a loss of Rs.2500 . Find the selling price of the phone.

**Answer:**

Cost price of a smart phone = \_\_\_\_\_ , loss = \_\_\_\_\_

Loss = \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ - \_\_\_\_\_

Therefore, selling price = \_\_\_\_\_

Hi, here in this video you will learn **Simple Interest**



**Question: 67** .....

Match the following.

| Column A |                 |
|----------|-----------------|
| i        | Principle(P)    |
| ii       | Amount (A)      |
| iii      | Rate (R)        |
| iv       | Time period (T) |

| Column B |                                   |
|----------|-----------------------------------|
| a        | Interest calculated based on this |
| b        | Total sum you borrow              |
| c        | Number of years                   |
| d        | Total sum with interest           |

**Answer:**

Formula for calculating simple interest = \_\_\_\_\_.

Interest calculated based on \_\_\_\_\_.

Total sum you borrow is known as \_\_\_\_\_.

Number of years is \_\_\_\_\_. Total sum with interest is \_\_\_\_\_.

**Question: 68** .....

Sara deposited Rs.1200 in a bank. After three years, she received Rs.1320. Find the interest she earned.

**Answer:**

Given:

Amount = \_\_\_\_\_ , Principle = \_\_\_\_\_ , Time period = \_\_\_\_\_.

If Amount and principle is given, then formula for calculating interest is \_\_\_\_\_.

Interest = \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

**Question: 69** .....

The simple interest on Rs.5000 for 3 years is Rs.1350. Find the rate of interest.

**Answer:**

Interest = \_\_\_\_\_ , Time period = \_\_\_\_\_ , Principal = \_\_\_\_\_.

Rate of interest =  $\frac{\text{_____} \times 100}{\text{Principal} \times \text{_____}}$

Substituting values in the formula,

Rate of interest =  $\frac{\text{_____} \times 100}{\text{Principal} \times \text{_____}}$

Rate of interest = \_\_\_\_\_

Therefore, the rate of interest is \_\_\_\_\_ %

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Algebra

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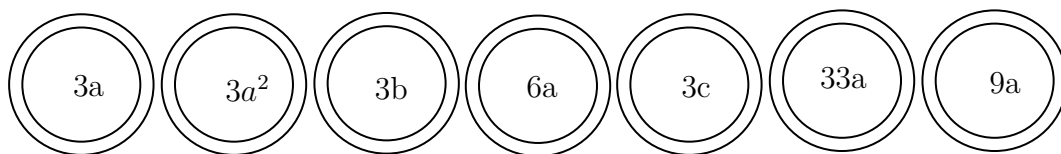
| Topics to be Improved                             |                                      |
|---|--------------------------------------|
| Addition and subtraction of algebraic expressions | Like terms and Unlike terms          |
| Basics of simple equation                         | Formating of simple equation         |
| Monomials, binomials, trinomials and polynomials  | Types of algebraic expression        |
| subtraction of algebraic expressions              | subtraction of algebraic expressions |

Hi, here in this video you will learn **Addition on expression**



*Question: 70* .....

Shade the like terms.



*Answer:*

Given terms are \_\_\_\_\_.

Two or more term have \_\_\_\_\_ ( same/ different) variables is called like terms.

Here, like terms are \_\_\_\_\_.

*Question: 71* .....

Complete the expression  $7r^2 + \boxed{\phantom{000}} - 2\boxed{\phantom{000}} = \underline{\hspace{2cm}}r^2$

Answer:

\_\_\_\_\_ (Like / Unlike) terms can be added or subtracted.

$$7r^2 + 1 - 2 = (7 - 2)r^2 = 5r^2$$

*Question: 72* .....

Sam have 3a chocolates and 9y icecream. Ram have 7a chocolates and 5y icecream.

- (i) Total chocolates Ram and Sam have : \_\_\_\_\_.
- (ii) How many icecreams Sam have more than Ram : \_\_\_\_\_ .

**Answer:**

|     | Chocolates | Icecream |
|-----|------------|----------|
| Sam |            |          |
| Ram |            |          |

- (i) Total chocolates Ram and Sam have :  
 Ram's chocolate + Sam's chocolates = \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_
- (ii) How many icecreams Sam have more than Ram :  
 \_\_\_\_\_ icecream - \_\_\_\_\_ icecream = \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

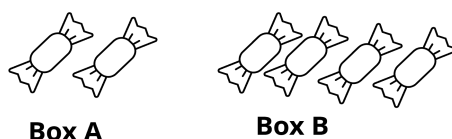
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Hi, here in this video you will learn **Solving an equation using application**

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**Question: 73** .....



Box B contains \_\_\_\_\_ times the number of chocolates in Box A

**Answer:**

Box A contains \_\_\_\_\_ chocolates.  
 Box B contains \_\_\_\_\_ chocolates.  
 No. of chocolates in Box B = \_\_\_\_\_  $\times$  (No. of chocolates in Box A)

**Question: 74** .....

Write the equation for the following statement.  
 Subtracting four times of  $m$  from 4 is  $n$

**Answer:**

Four times of  $m$  = \_\_\_\_\_  
 Subtracting four times of  $m$  from 4 = \_\_\_\_\_

The equation is \_\_\_\_\_

---



**Question: 75** .....

Compare the given two statements ( $<$ ,  $>$ ,  $=$ )

Sum of  $2a$  and 9 ☐ Add 9 to the product of  $a$  and 2

**Answer:**

Sum of  $2a$  and 9 = \_\_\_\_\_

Product of  $a$  and 2 = \_\_\_\_\_

Add 9 to the product of  $a$  and 2 = \_\_\_\_\_

Therefore, sum of  $2a$  and 9 ☐ Add 9 to the product of  $a$  and 2

---

Hi, here in this video you will learn **Types of expression**

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**Question: 76** .....

There are \_\_\_\_\_ terms in the expression  $7x + 3y + m + 5$ .

**Answer:**

In algebraic expression, \_\_\_\_\_ (variables/ terms) are connected together with operations of addition.

The terms in the expression are \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , and \_\_\_\_\_ .

Therefore, there are \_\_\_\_\_ terms in the expression.

**Question: 77** .....

Classify the following expression into monomial, binomial and polynomial.

1.  $7m + n + 2$

2.  $8x^2 + 0$

3.  $7xy + 4m$

**Answer:**

1. The terms in expression  $8x^2 + 0$  are \_\_\_\_\_.

Here, expression has \_\_\_\_\_ term and it is a \_\_\_\_\_.

2. The terms in expression  $7xy + 4m$  are \_\_\_\_\_.

Here, expression has \_\_\_\_\_ term and it is a \_\_\_\_\_.

3. The terms in expression  $7m + n + 2$  are \_\_\_\_\_.

Here, expression has \_\_\_\_\_ term and it is a \_\_\_\_\_.

**Question: 78** .....

$5m^2 + m + 0$  is a \_\_\_\_\_ expression. (Monomial/ Binomial/ Trinomial)

**Answer:**

The terms in expression  $5m^2 + m + 0$  are \_\_\_\_\_.

Here, the expression has \_\_\_\_\_ terms and it is called a \_\_\_\_\_ expression.

Hi, here in this video you will learn **Subtraction on expression**



**Question: 79** .....

Find the sum of two expressions  $a + b + c$  and  $b + c + d$

**Answer:**

The given two expressions are \_\_\_\_\_ and \_\_\_\_\_.

The two terms will get added only if they are \_\_\_\_\_ ( Like/ Unlike) terms.

The sum of two expressions = \_\_\_\_\_ + \_\_\_\_\_.

The answer is \_\_\_\_\_

**Question: 80** .....

|                    | School A | School B |
|--------------------|----------|----------|
| Number of boys     | 100b     | 250b     |
| Number of girls    | 150g     | 200g     |
| Number of teachers | 25t      | 45t      |

(i) Total number of boys in school A and B is \_\_\_\_\_

(ii) Total number of students in school B is \_\_\_\_\_

(iii) How many more teachers are there in school B than school A ? \_\_\_\_\_

**Answer:**

(i) Number of boys in school A = \_\_\_\_\_,

Number of boys in school B = \_\_\_\_\_.

Total number of boys in school A and school B is \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_.

(ii) Number of boys in school B = \_\_\_\_\_,

Number of girls in school B = \_\_\_\_\_.

Total number of students in school B is \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_.

