

# LaPIS Diagnostic Test Workbook - Mathematics

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Name : Varun S

Class : 7

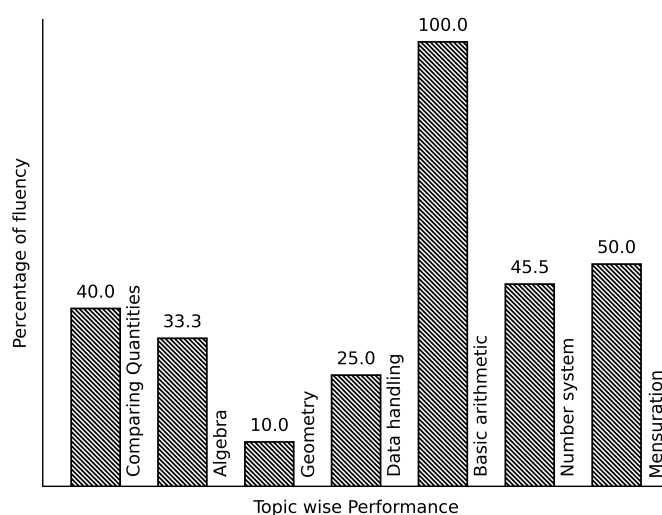
Section : C

School : AKV Public School

Login ID : AKV184

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## Varun S's Performance Report



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Score: 14/40

Percentage: 35.0%

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## Varun S's Study Planner

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Date	Topics Planned	Q. Numbers	Teacher Remark	Teacher Sign	Parent Sign

Teacher's Feedback to Student

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Class Teacher Signature

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Principal Signature

# Mensuration

## Topics to be Improved

Area

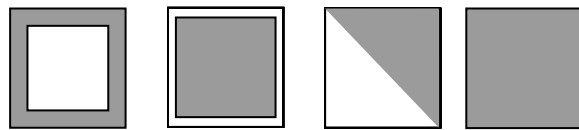
Area of rectangle

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



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

Find which of the shaded portion in the given shape represent it's area.



**Answer:**

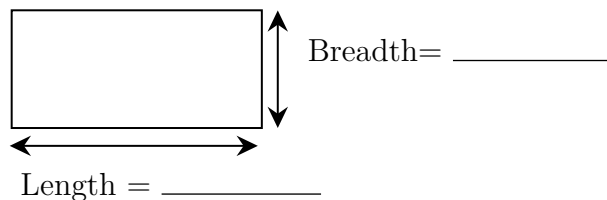
Given figure is \_\_\_\_\_ in shape.

Area is the \_\_\_\_\_ ( inside/ outside/ boundary ) of a shape.

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

Find the area of a rectangular garden whose dimension is 25 ft in length and 20 ft in breadth.

**Answer:**



The garden is in \_\_\_\_\_ shape.

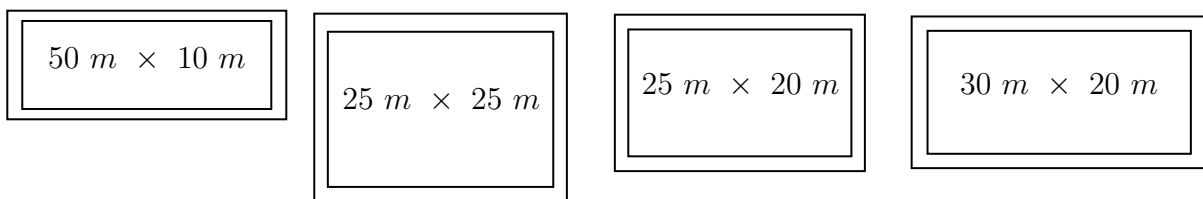
Length of garden is \_\_\_\_\_ and breadth of garden is \_\_\_\_\_.

Formula for area of the shape = \_\_\_\_\_.

The area of garden = \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_  $cm^2$

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

Shade the possible dimension of the door whose area is  $500 m^2$



**Answer:**

Door is \_\_\_\_\_ in shape. Area of the \_\_\_\_\_ shaped door is \_\_\_\_\_.

Dimensions	Length	Breadth	Area
50m × 10m			
25m × 25m			
25m × 20m			
30m × 20m			

Therefore, possible dimension of the door whose area is  $500\text{ m}^2$  is/are \_\_\_\_\_

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## Data handling

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Topics to be Improved	
Range	Finding the range
Chance of probability	Sample space in probability, Basis of probability

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

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

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: 5** .....

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

$$-20 + 51$$

$$\frac{-38-51}{2}$$

$$51 + 38$$

$$\frac{51+20}{2}$$

**Answer:**

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

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

In the given data,

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

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

Find the range of first 10 multiple of 5.

**Answer:**

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

Therefore,

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

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

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

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.

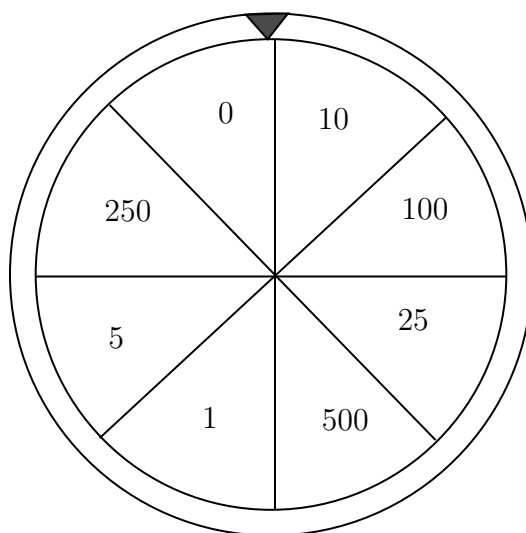
Sure events always \_\_\_\_\_ (occurs/don't occurs).

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

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

**Question: 8**

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: 9**

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 + \_\_\_\_\_ ,  
\_\_\_\_\_ + \_\_\_\_\_, \_\_\_\_\_ + \_\_\_\_\_,

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

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

Identify the sure events and impossible events

- (i) The sun rises in the west.
- (ii) Water is colourless.
- (iii) Clock rotates in clock wise direction.
- (iv) Ball is square in shape.

**Answer:**

Events that always occur are called \_\_\_\_\_ (sure/ impossible) events.

Events that cannot occur are called \_\_\_\_\_ (sure/ impossible) events.

Here, The sun rises in the west is \_\_\_\_\_ event. Water is colourless is \_\_\_\_\_ event.

Clock rotates in clock wise direction is \_\_\_\_\_ event. Ball is square in shape is \_\_\_\_\_ event.

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

Probability of sure events is \_\_\_\_\_ (greater / smaller) than probability of impossible events.

**Answer:**

Probability of sure event = \_\_\_\_\_ (0/ 1/ any number).

Probability of impossible event = \_\_\_\_\_ (0/ 1/ any number).

Therefore, Probability of sure event \_\_\_\_\_ Probability of impossible event.

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

Raju has pencil, an eraser, a scale, sharpener, colour pencil and protractor in his box. What is the probability of getting a pen from his box.

**Answer:**

Things Raju have \_\_\_\_\_

Does Raju have pen in his box, \_\_\_\_\_ (Yes/ No).

Then probability of getting pen from his box is \_\_\_\_\_ (0/1)

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# Geometry

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

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

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

- (i) When two rays of an angle are perpendicular, then the angle formed between them is a \_\_\_\_\_ angle .
- (ii) When two rays of an angle are in opposite sides, then the angle formed between them is a \_\_\_\_\_ angle .

**Answer:**

A \_\_\_\_\_ ( line segment /ray ) begins from one point and travels endlessly in a direction.

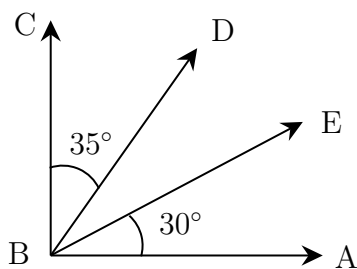
- (i) The angle formed between two perpendicular rays is \_\_\_\_° and it is called \_\_\_\_\_ angle.
- (ii) If two rays starting at same point moves in opposite direction, they form a \_\_\_\_\_ (straight / perpendicular) line. The measure of the angle formed is \_\_\_\_° and it is called \_\_\_\_\_ angles.

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

Find the angle of  $\angle DBE$

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**Answer:**

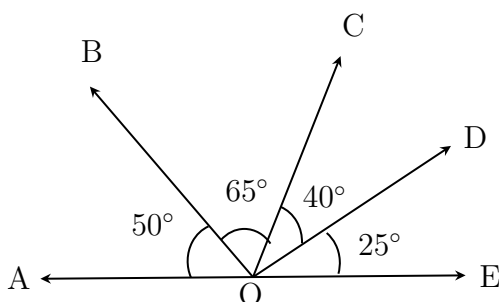
BA and BC are \_\_\_\_\_ ( parallel / perpendicular ) rays.  
The angle formed between this rays is \_\_\_\_,  $\angle ABC =$  \_\_\_\_.

$$\begin{aligned}\angle ABC &= \angle ABE + \text{_____} + \text{_____} \\ &= 30^\circ + \text{_____} + \text{_____} \\ &= \text{_____}\end{aligned}$$

Therefore,  $\angle DBE =$  \_\_\_\_\_

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

Find the complementary angles in the given diagram.



**Answer:**

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

$\angle AOB =$  \_\_\_\_\_, and its complement angle is \_\_\_\_\_.

$\angle BOC =$  \_\_\_\_\_, and its complement angle is \_\_\_\_\_.

$\angle COD =$  \_\_\_\_\_, and its complement angle is \_\_\_\_\_.

$\angle DOE =$  \_\_\_\_\_, and its complement angle is \_\_\_\_\_.

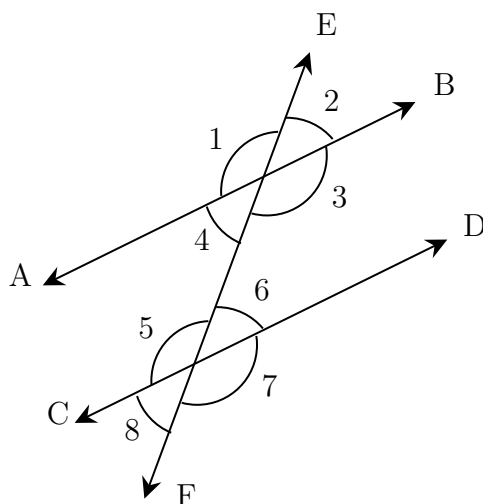
Therefore, in the given figure the complementary angles are  $\angle AOB$ , \_\_\_\_\_ and  $\angle BOC$ , \_\_\_\_\_

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



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

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).

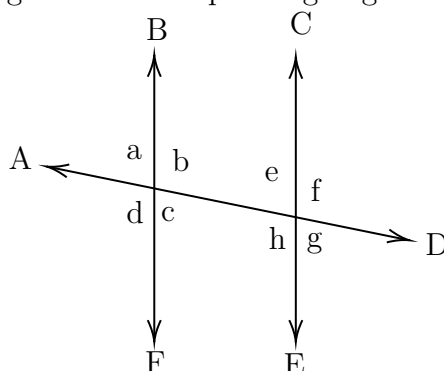
Angle that lies on different vertices and on the opposite sides of transversal is \_\_\_\_\_ angles.

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

Therefore,  $\angle 1$  and  $\angle 7$  are \_\_\_\_\_

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

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



**Answer:**

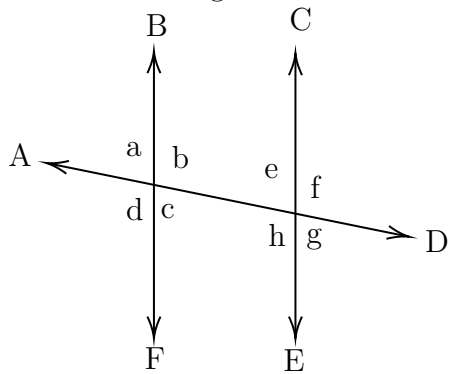
A line that intersects two or more lines at distinct points is called a \_\_\_\_\_ (transversal/Intersecting line).

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: 18** .....

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).

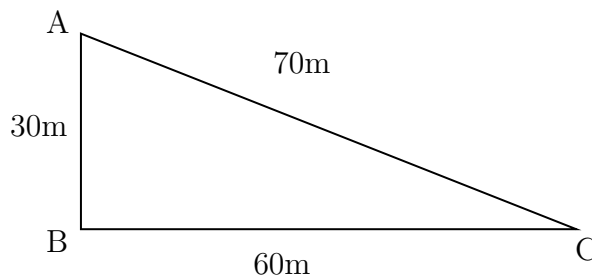
Here, alternate angle of  $\angle a$  is \_\_\_\_\_ and its value is \_\_\_\_\_.  
Corresponding angle of  $\angle a$  is \_\_\_\_\_ and its value is \_\_\_\_\_.

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



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

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: 20** .....

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

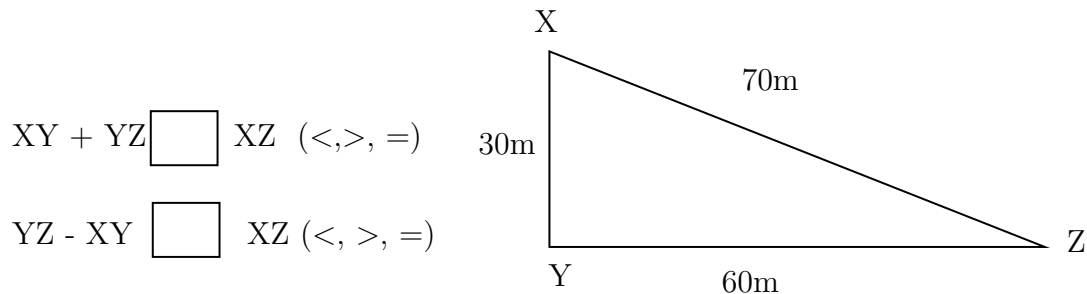
**Answer:**

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: 21** .....

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:**

1. 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 \_\_\_\_\_
2. 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 3D model**

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

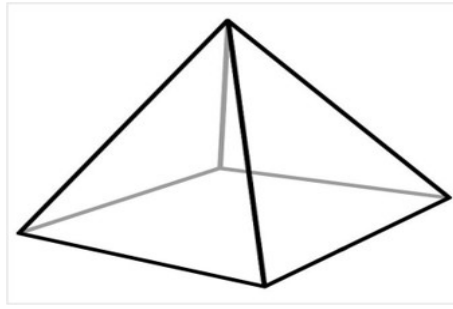
A point at which two or more lines segments meet is called \_\_\_\_\_ (Vertex/ edges/ faces).

**Answer:**

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

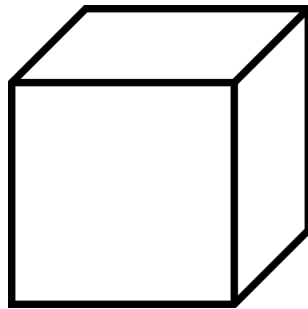
A \_\_\_\_\_ is a point where two or more line segments meet (Vertex/ edges/ faces).

Mark the vertices in the diagram,



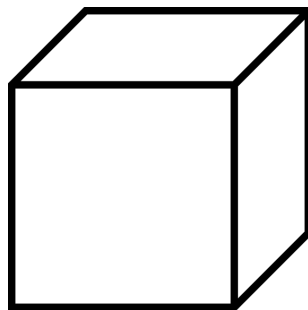
**Question: 23** .....

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: 24** .....

How many vertices, edges and faces does dices have?



**Answer:**

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

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

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



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

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

**Answer:**

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

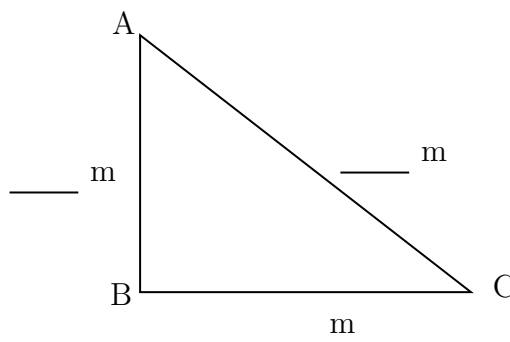
Longest side of the triangle is \_\_\_\_\_ (hypotenuse/ legs) and other two sides are called \_\_\_\_\_(hypotenuse/ legs).

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

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

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.

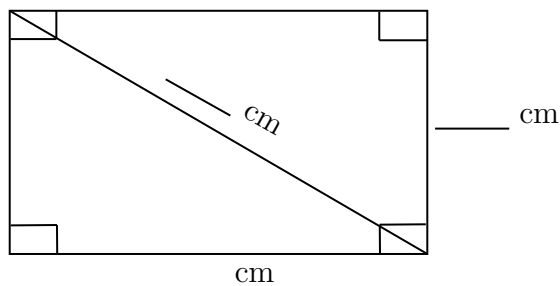
By Pythagoras theorem,  $(\text{---})^2 = (\text{---})^2 + (\text{---})^2$   
 $\text{---} = \text{---} + \text{---}$

Therefore, hypotenuse of the triangle is  $\text{---}$ .

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

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

**Answer:**



Pythagoras theorem states that square on the  $\text{---}$  = sum of the squares on  $\text{---}$ .

Is Pythagoras theorem applicable in rectangle?  $\text{---}$  ( yes/ no).

Given: breadth =  $\text{---}$ , length of diagonal =  $\text{---}$

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

Therefore, diagonal of the rectangle is  $\text{---}$

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

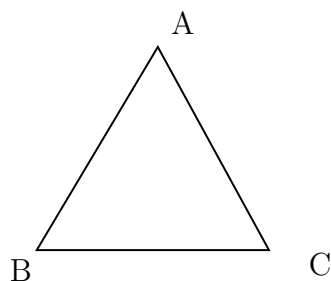
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**Question: 28** .....

Sum of the angles of triangle is  $\text{---}$ .

**Answer:**



$$\angle A + \angle B + \angle C = \text{---}$$

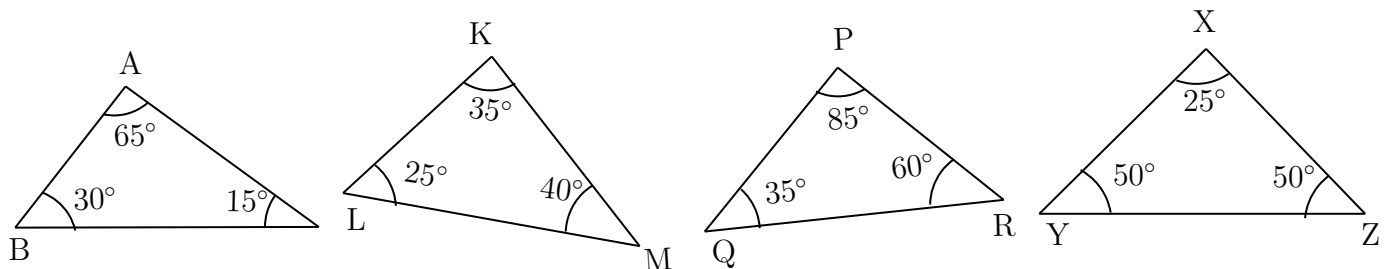
Angle sum formula =  $(n - 2) \times 180^\circ$ ,  $n$  = number of sides

Triangle has  $\text{---}$  sides.

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

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

Which of the following triangle satisfy the angle sum property.



**Answer:**

Angle sum property of triangle: sum of the angles of a triangle is \_\_\_\_\_

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 = \_\_\_\_\_

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

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

**Answer:**

Ratio of angles in the triangle is \_\_\_\_\_

Let's consider the angles of triangle be  $8x$ , \_\_\_\_\_ and \_\_\_\_\_

We know sum of the angles of a triangle is \_\_\_\_\_

Therefore,  $8x + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 180^\circ$ . The value of  $x = \underline{\hspace{2cm}}$

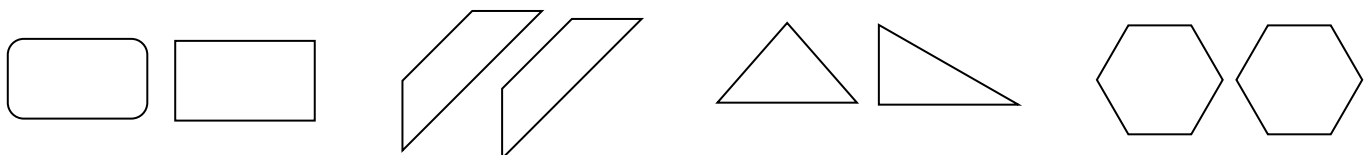
The angles of the triangle are \_\_\_\_\_

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



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

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: 32** .....

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:**

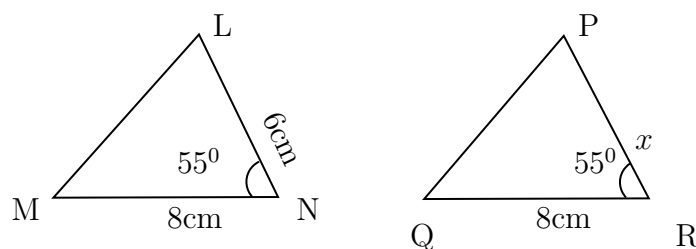
Two triangle are \_\_\_\_\_ (congruent/not congruent) if they are identical in shapes and size. Criteria for congruence of triangles are SSS, \_\_\_\_\_ and \_\_\_\_\_.

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: 33** .....

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,  $MN = \underline{\hspace{2cm}}$  , \_\_\_\_\_ and  $\angle N = \underline{\hspace{2cm}}$

The side  $MN = 8 \text{ cm}$  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  $PR = \underline{\hspace{2cm}}$

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

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

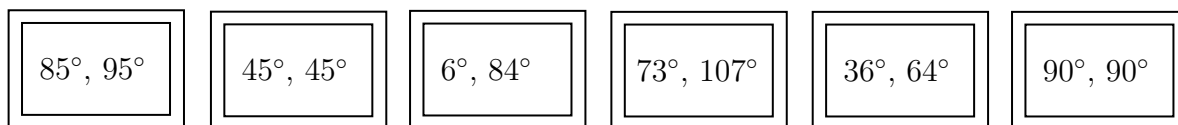
1. Two angles are complementary if their sum is equal to \_\_\_\_\_.
2. Two angles are supplementary if their sum is equal to \_\_\_\_\_.

**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: 35** .....

Shade the complementary angles.



**Answer:**

Two angles are said to 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: 36** .....

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: 37** .....

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

**Answer:**

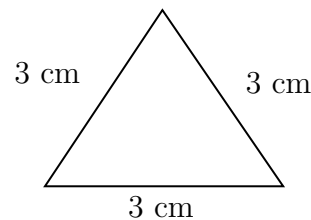
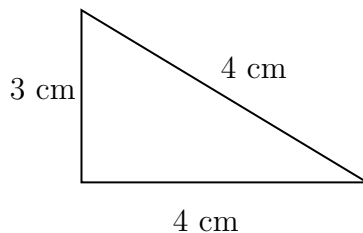
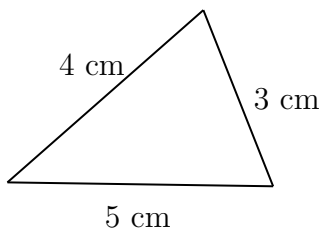
A polygon is a simple \_\_\_\_\_ (open / closed ) curve made up of only line segments.

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

Draw a diagram of polygon with three sides :

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

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: 39** .....

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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## Number system

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Topics to be Improved	
Operations on rational numbers	Division of rational numbers
Law of Exponents	Law of Exponents
Fractions	Multiplication of fractions, Division of fraction
Exponents	Solving exponents
Properties of integers	Associative property

---

Hi, here in this video you will learn **Operation on rational numbers**

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

Fill in the boxes to make the given expression correct.

$$\frac{1}{5} \div \frac{14}{15} = \frac{1}{\boxed{\phantom{00}}} \times \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

**Answer:**

When any fraction is divided by a fraction, we multiply the dividend by the \_\_\_\_\_ (same/reciprocal) of the divisor.

Here, dividend = \_\_\_\_\_ and divisor = \_\_\_\_\_

$$\frac{1}{5} \div \frac{14}{15} = \frac{1}{\boxed{\phantom{00}}} \times \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

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

Solve:  $\frac{18}{7} \div 0.6$

**Answer:**

Fraction form of 0.6 = \_\_\_\_\_,

when any fraction is divided by a fraction, we multiply the dividend by the \_\_\_\_\_ (same/reciprocal) of the divisor. Here, dividend = \_\_\_\_\_ and divisor = \_\_\_\_\_.

$$\frac{18}{7} \div \frac{\square}{\square} = \frac{18}{7} \times \frac{\square}{\square} = \frac{\square}{\square}$$

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

Find the missing number in the expression  $\frac{8}{3} \div \frac{16}{\square} = 2$

**Answer:**

$$\frac{8}{3} \div \frac{16}{\square} = 2$$

$$\frac{8}{3} \times \frac{\square}{16} = 2$$

Transposing  $8/3$  to RHS,

$$\frac{\square}{16} = 2 \times \frac{8}{3}$$

$$\frac{\square}{16} = 2 \times \frac{\square}{\square}$$

$$\frac{\square}{16} = \frac{\square}{\square}$$

Transposing 16 to other side, the result is \_\_\_\_\_.

Hi, here in this video you will learn **Law of exponents**



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

$(x)^0$  is equal to \_\_\_\_\_.

**Answer:**

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

In  $(x)^0$  base = \_\_\_\_\_

Power = \_\_\_\_\_

Any number or variable with power zero is equal to \_\_\_\_\_.

Therefore,  $(x)^0$  equal to \_\_\_\_\_.

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

i.  $a^m \times a^n =$  \_\_\_\_\_

ii.  $a^m \div a^n =$  \_\_\_\_\_

**Answer:**

Multiplication of two numbers with same base with different power, their exponents are \_\_\_\_\_ (added/ subtracted)

Division of two numbers with same base with different power, their exponents are \_\_\_\_\_ (added/ subtracted).

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

Circle the result of the expression  $(a^0 \times b^1) + (m^1 \times n^0) + (x^0 \times y^1)$

$a + n + x$     $bmy$     $1$     $ab + mn + xy$     $0$     $anx$     $b + m + y$

**Answer:**

Any number with power zero is equal to \_\_\_\_\_ (One/ Zero).

Any number with power one is equal to \_\_\_\_\_ (same/ different) number.

$$\begin{aligned}(a^0 \times b^1) + (m^1 \times n^0) + (x^0 \times y^1) &= (\text{_____}) + (\text{_____}) + (\text{_____}) \\ &= \text{_____} + \text{_____} + \text{_____} \\ &= \text{_____}\end{aligned}$$

---

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

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

Fill the boxes

$$2 + 4 + \frac{6}{2} = \frac{2}{\square} + \frac{4}{\square} + \frac{3}{\square} = \frac{\square}{\square} = 9$$

**Answer:**

The whole number can be expressed in fraction with denominator equal to \_\_\_\_\_ (zero/one).

Therefore, 2 can be written as \_\_\_\_\_ in fraction.

4 can be written as \_\_\_\_\_ in fraction.

$$2 + 4 + \frac{6}{2} = \frac{2}{1} + \frac{4}{\square} + \text{---} = \frac{2}{1} + \frac{4}{\square} + \frac{3}{\square} = \frac{\square}{\square} = 9$$

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

There are 400 students in a school. Find the number of girls, if three sixteenth of the students are girls.

**Answer:**

Total number of students = \_\_\_\_\_

Fraction of students who are girls = \_\_\_\_\_

Number of girls =  $\frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}} \times \text{_____} = \text{_____}$

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

Solve :  $2\frac{7}{4} \times \frac{2}{3}$

**Answer:**

$2\frac{7}{4}$  is a \_\_\_\_\_ (proper / mixed) fraction.

Here, 2 is \_\_\_\_\_, 7 is \_\_\_\_\_ and 4 is \_\_\_\_\_.

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

Improper fraction of  $2\frac{7}{4} = \text{_____}$

$$2\frac{7}{4} \times \frac{2}{3} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}} \times \frac{2}{3} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$$

---

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

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

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 \_\_\_\_ =  $(10)\text{---}$

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

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 = \_\_\_\_.  
 $(-2)^3 = \_\_\_ \times \_\_\_ \times \_\_\_ = \_\_\_.$

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

- (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 = \_\_\_\_.

---

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

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

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,  $a + b = \text{_____} + \text{_____}$

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

(iv) Identity property : The sum of \_\_\_\_\_ and any number always returns same number.

Therefore,  $a + \text{_____} = a$

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

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

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: 54** .....

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 \_\_\_\_\_.

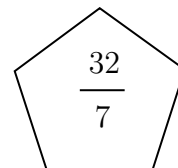
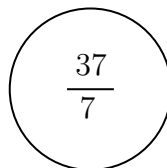
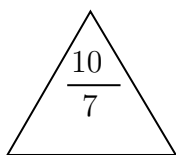
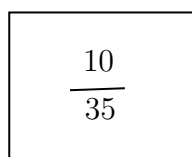
Therefore, additive identity is \_\_\_\_\_ ( equal / not equal) to multiplicative identity.

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



**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 \_\_\_\_\_

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## Comparing Quantities

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Topics to be Improved	
Percentage	Basic of percentage
Conversion of fraction into percentage	Conversion of fraction into percentage
Equivalent ratios	Basic of proportion

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

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

2% can be written as

**Answer:**

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

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

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

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: 60** .....

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

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

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Hi, here in this video you will learn **Converting fraction into percentage**

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

Complete the box in the given equation.

$$5\% = \frac{5}{\boxed{\phantom{00}}}$$

**Answer:**

Percentage are the fraction with the denominator \_\_\_\_\_.

Therefore, 5% can be expressed as \_\_\_\_\_

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

Mark the correct conversion form of fraction  $\frac{1}{2}$  to percentage.

- (i)  $\frac{1}{2} \times \frac{50}{50} = \frac{50}{100} = 50\%$
- (ii)  $\frac{1}{2} \times \frac{100}{100} = \frac{100}{200} = 200\%$
- (iii)  $\frac{1}{2} \times 100 = \frac{100}{2} = 50\%$

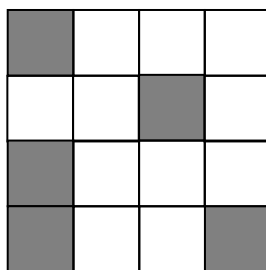
**Answer:**

To convert fraction into percentage, the value of \_\_\_\_\_ (denominator / numerator) should be 100 or \_\_\_\_\_ ( multiply / divide) the fraction with 100 %.

Therefore, correct conversion form is \_\_\_\_\_

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

Find the percentage of shaded part of square.



**Answer:**

The square shape is divided into \_\_\_\_\_ parts.

Number of shaded part of square is \_\_\_\_\_.

Shaded part of square in fraction is \_\_\_\_\_

To Convert  $\frac{\text{□}}{\text{□}}$  into percentage ,  $\frac{\text{□}}{\text{□}} \times 100$

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

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

If a:b and c:d are equivalent ratio, then it can be expressed as \_\_\_\_\_

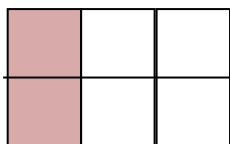
**Answer:**

A \_\_\_\_\_ (proportion / ratio) is used to express \_\_\_\_\_ ( one/two) equivalent ratios.

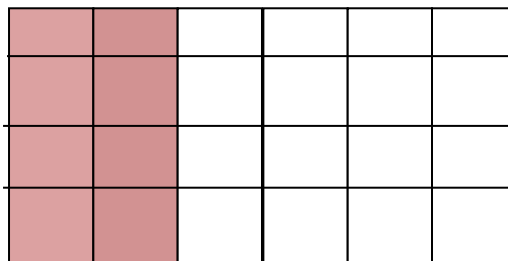
Standard form to express proportion is \_\_\_\_\_.

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

Find the ratio of shaded part to unshaded part of A and B. Are the two ratios equivalent ?



A



B

**Answer:**

Shaded part of A = \_\_\_\_\_, Unshaded part of A = \_\_\_\_\_.

Ratio of shaded to unshaded parts of A is \_\_\_\_\_. Fractional form = \_\_\_\_\_.

Shaded part of B = \_\_\_\_\_ ,

Unshaded part of B = \_\_\_\_\_.

Ratio of shaded to unshaded parts of B is \_\_\_\_\_.

Fractional form = \_\_\_\_\_.

Fraction form of A \_\_\_\_\_ ( equal/ not equal) to Fraction form of B.

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

If  $a : b :: c : d$  is proportion, shade the correct expression

$a = \frac{bc}{d}$

$c = \frac{ad}{b}$

$ad=cd$

**Answer:**

Two equivalent ratio which are proportion, it can be written as  $a : b :: c : d$

or \_\_\_\_\_ = \_\_\_\_\_ (in fraction) .

First and fourth term are called \_\_\_\_\_ and second and third term are called \_\_\_\_\_.

In proportion, product of extreme terms is \_\_\_\_\_ ( equal to/ not equal to) product of middle terms.

Therefore,  $a \times d =$  \_\_\_\_\_,

then  $a =$  \_\_\_\_\_ and  $c =$  \_\_\_\_\_

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Algebra

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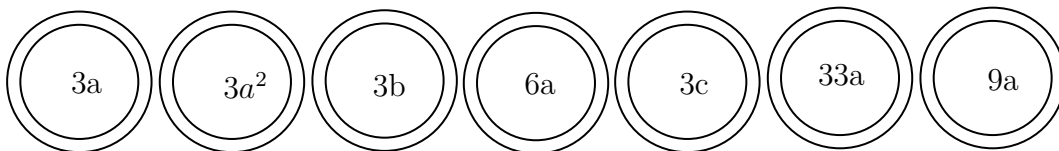
Topics to be Improved	
Addition and subtraction of algebraic expressions	Like terms and Unlike terms
subtraction of algebraic expressions	subtraction of algebraic expressions
Basics of simple equation	Solving of simple equation, Formating of simple equation

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



*Question: 67* .....

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: 68* .....

Complete the expression  $7r^2 + r \square - 2 \square = \underline{\hspace{1cm}} r^2$

**Answer:**

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

$$7r^2 + r \square - 2\square = (7 + \underline{\hspace{1cm}} - 2)r^2 = \underline{\hspace{1cm}}$$

*Question: 69* .....

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 **Subtraction on expression**

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**Question: 70** .....

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: 71** .....

	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:**

- Question: 72** .....

$$\begin{array}{r} 13x + \_\_\_\_\_\_ \\ (+) 12x + 10y \\ \hline \_\_\_\_\_\_ + 25y \end{array}$$

$$\begin{array}{r} 3a - 5b \\ (-) \quad 5a - 7b \\ \hline -2a - \underline{\hspace{1cm}} \end{array}$$

$$\begin{array}{r} 13x + \_\_\_\_\_\_ \\ (+) 12x + 10y \\ \hline \_\_\_\_\_\_ + 25y \end{array}$$

$$\begin{array}{r} 3a - 5b \\ (-) \quad 5a - 7b \\ \hline -2a - \underline{\hspace{1cm}} \end{array}$$



*Question: 73* .....

Substituting the value in the expression  $= 5(\underline{\hspace{1cm}}) + 5 = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$ .

*Question: 74* .....

$$7 \square + 3 = -4$$
$$7 \times \underline{\quad} + 3 = \underline{\quad}$$

$$7 \times \underline{\quad} + 3 = \underline{\quad}$$

$$7 \times \underline{\quad} + 3 = \underline{\quad}$$

$$7 \times \underline{\quad} + 3 = \underline{\quad}$$

$$7 \times \underline{\quad} + 3 = \underline{\quad}$$

Therefore,          is the number that can be placed in a box to make the equation correct.

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

Arrange the terms in the descending order when the value of x is 2.

$$2x \quad 5x \times 1 \quad x + 3 \quad 2x - 4 \quad \frac{1}{2}x$$

**Answer:**

The given expression are                     .

The value of x is         .

substituting value of x

$$2x = 2 \times \underline{\quad} = \underline{\quad}$$

$$2x - 4 = 2 \times \underline{\quad} - 4 = \underline{\quad}$$

$$x + 3 = \underline{\quad} = \underline{\quad}$$

$$\frac{1}{2}x = \frac{1}{2} \times \underline{\quad} = \underline{\quad}$$

$$5x \times 1 = 5 \times \underline{\quad} \times 1 = \underline{\quad}$$

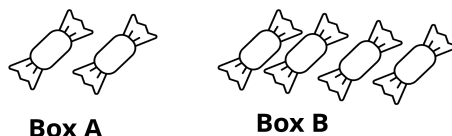
Arranging in descending order:     ,     ,     ,     ,     .

Their respective algebraic terms are     ,     ,     ,     ,     .

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



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



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: 77** .....

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: 78** .....

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