# LaPIS Diagnostic Test Workbook - Mathematics

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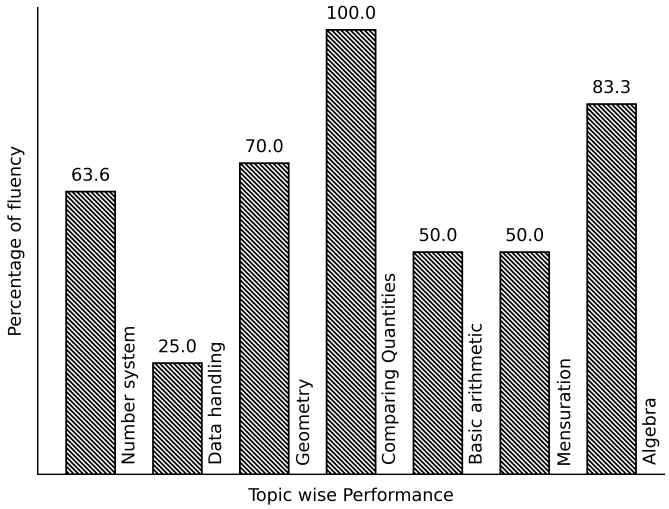
| **Name** | **:** | **Haridharshnan K P** |
| **Class** | **:** | **7** |
| **Section** | **:** | **A** |
| **School** | **:** | **AKV Public School** |
| **Login ID** | **:** | **AKV106** |

## Haridharshnan K P's Performance Report




**Score: 27/40** **Percentage: 67.5%**

# Haridharshnan K P's Study Planner

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

Class Teacher Signature

Principal Signature

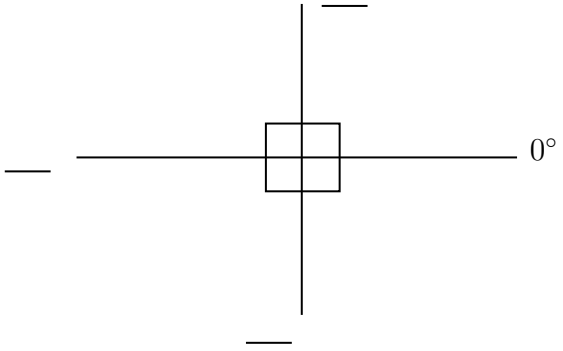
# Basic arithmetic

| Topics to be Improved | |
|---|---|
| **Types of angles** | Identification of types of angles |

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

***Question: 1***

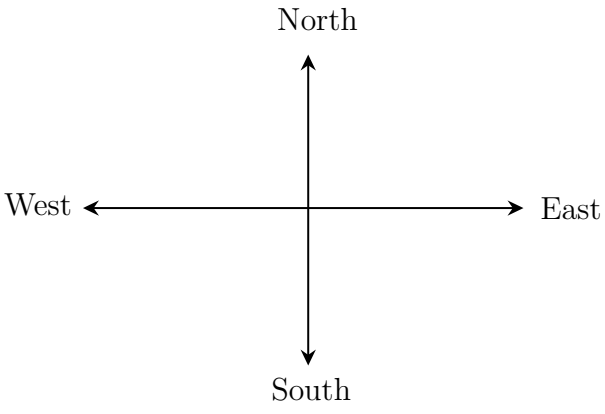
Find the angles.




***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.

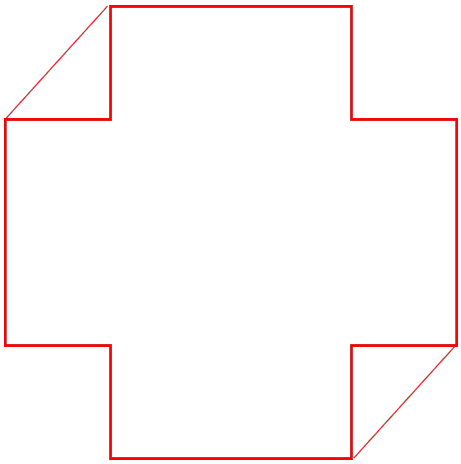
# Mensuration

| Topics to be Improved | |
|---|---|
| **Perimeter** | Perimeter of triangle |

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

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

Highlight the perimeter in the given image.

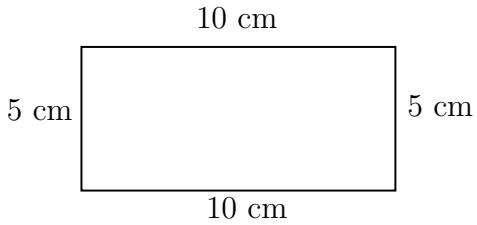


***Answer:***

Perimeter is the _____ ( outer / inner) boundary of the shape

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

Find the perimeter of the given figure.



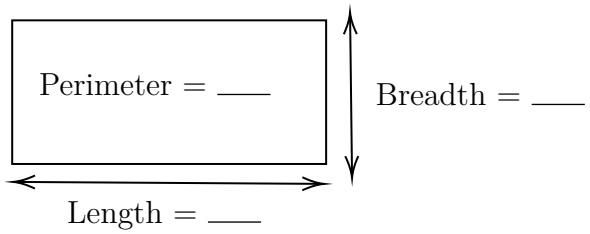

***Answer:***

Sides of the given shape = _____.
Perimeter of a shape is _____ ( sum / difference) of _____ (all/ opposite) sides.
Perimeter of the given shape = _____

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

Find the length of the rectangular floor if its perimeter is 60 ft and breadth is 3 ft.

***Answer:***




Shape of the floor is _____ and its perimeter formula is _____.
Given:

floor perimeter = _____, and breadth = _____.

Perimeter of the floor = 2(_____ + _____).

Therefore, length of the rectangular floor is _____.

# Data handling

| Topics to be Improved | |
|---|---|
| **Arithmetic mean, mode and median** | Mean, Median and Mode |
| **Chance of probability** | Sample space in probability, Basis of probability |

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

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

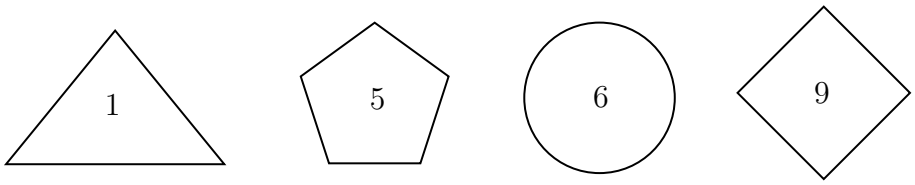
Find the mode of the following data: 5, 15, 23, 5, 32, 44, 72, 55, 6, 3, 5, 65, 45, 67, 24, 19 and 98.

***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 = $\frac{\text{\_\_\_\_\_ of all observation}}{\text{number of obserivation}}$.

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.

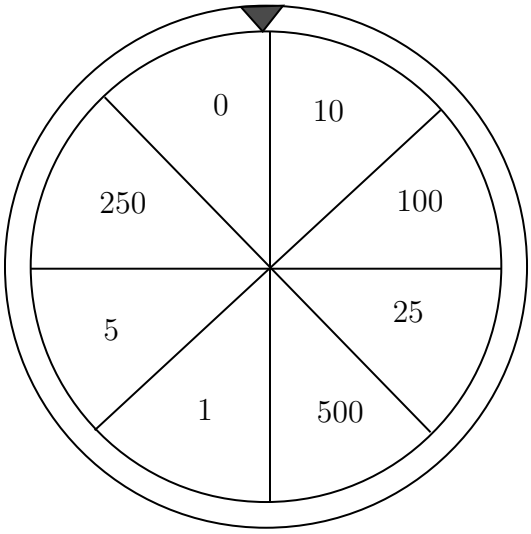
| | | | |
|---|---|---|---|
| Probability | Sample space | Sure events | Impossible events |

***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 balss 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: 13*** .....

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: 14*** .....

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: 15*** .....

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)

# Geometry

| Topics to be Improved | |
|---|---|
| **Faces vertex and edges** | Idenfication of faces,edges and vertices |
| **Types of triangle** | Basics of types of triangle (sides) |
| **Right angle triangle and pythagoras property** | Basics of Pythagoras property |

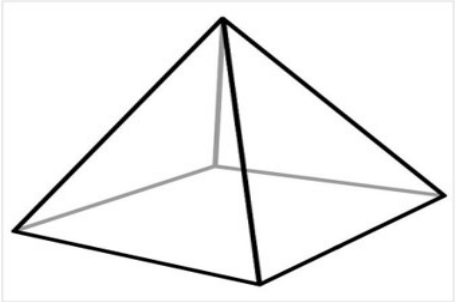
Hi, here in this video you will learn **Basics of 3D model**

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

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

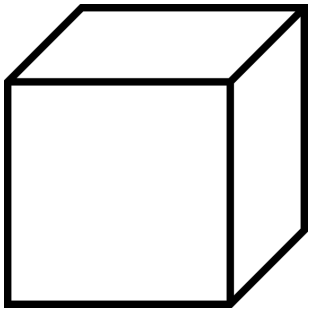
***Answer:***

_____ 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,



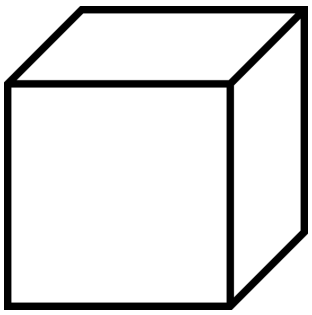
***Question: 17*** .....

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: 18*** .....

How many vertices, edges and faces does dices have?

***Answer:***

The shape of dice is _____.
Dices have _____ vertices, _____ edges and _____ faces.

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

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

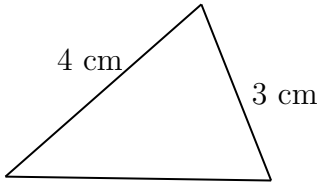
Polygon with three sides is called as _____.

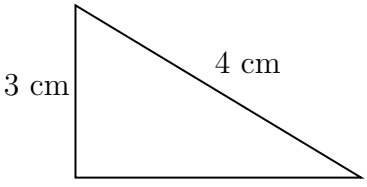
***Answer:***

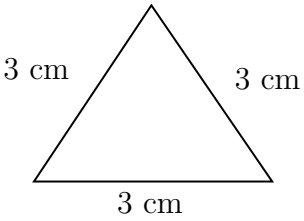
A polygon is a simple _____ (open / closed ) curve made up of only line segments.
Polygon with three sides is called _____.
Draw a diagram of polygon with three sides :

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

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: 21*** .....

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: 22*** .....

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

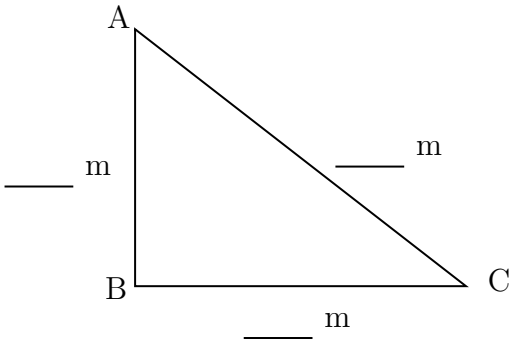
***Answer:***

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: 23*** .....

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, (_____)$^2$ = (_____)$^2$ + (_____)$^2$

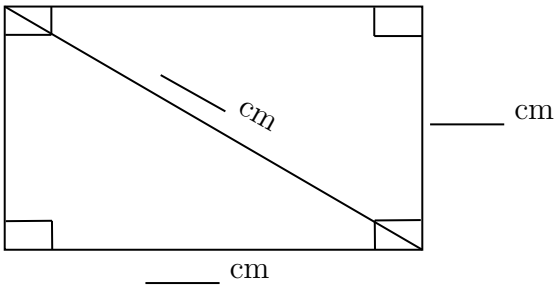
_____ = _____ + _____

Therefore, hypotenuse of the triangle is _____.

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

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, (_____)$^2$ = (_____)$^2$ + (_____)$^2$

_____ = _____ + _____

Therefore, diagonal of the rectangle is _____

# Number system

| Topics to be Improved | |
|---|---|
| **Law of Exponents** | Law of Exponents |
| **Positive and negative rational numbers** | Identification of positive rational numbers |
| **Operations on rational numbers** | Subtraction of rational numbers |
| **Properties of integers** | Associative property |

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

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

$(x)^0$ 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: 26*** .....

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: 27*** .....

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.

$$\begin{aligned}\left(a^0 \times b^1\right) + \left(m^1 \times n^0\right) + \left(x^0 \times y^1\right) &= (\_\_\_\_\_) + (\_\_\_\_\_Ö\_\_\_\_\_) + (\_\_\_\_\_) \\ &= \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ \\ &= \_\_\_\_\_\end{aligned}$$

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

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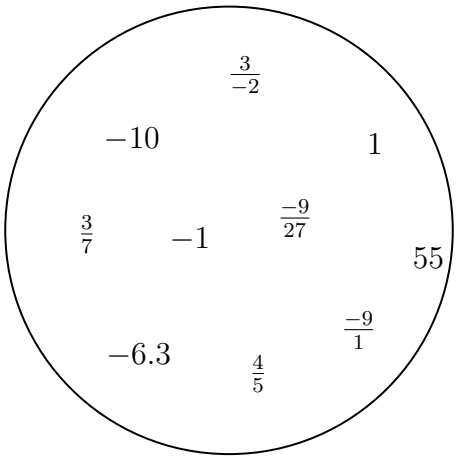
***Question: 28*** .....

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: 29*** .....

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

***Answer:***

$-3$ is a _____ number, $-4$ is a _____ number.

Division of $\frac{-3}{-4} = \frac{\square}{\square}$ and this _____ rational number.

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

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

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 × Negative rational number = _____ × _____ = _____ and this is _____ rational number

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

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

Solve: $\frac{-3}{3} + \frac{1}{3}$

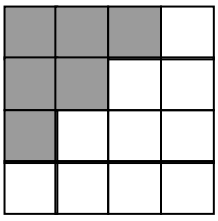
***Answer:***

Fractions with same denominators are called _____ (like/ unlike) fractions.
Fraction can be added only if they are _____(like/ unlike) fractions.

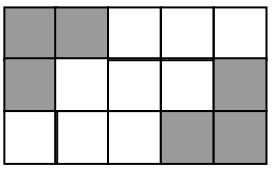
$$\frac{-3}{3} + \frac{1}{3} = \frac{\quad}{3} =$$

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

Find the addition of shaded part of box A and shaded part of box B.



A



B

***Answer:***

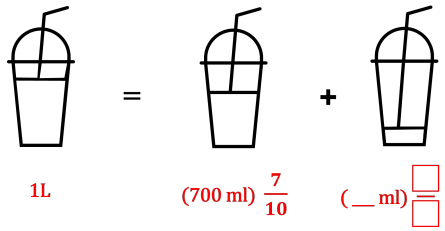
Total number of square in box A = _____.
Number of shaded square in box A = _____
Shaded part of box A in fraction = _____

Total number of square in box B = _____.
Number of shaded square in box B = _____.
Shaded part of box B in fraction = _____.

Shaded part of box A + Shaded part of box B = _____ + _____ = _____

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

Find the missing values in the given figure.




***Answer:***

One litre = _____ ml
$\frac{7}{10}$ of one liter = $\frac{7}{10}$ x ____ ml = ____ ml

*Given:* 1 = $\frac{7}{10}$ + ____
Transposing $\frac{7}{10}$ to other sides, 1 ____ $\frac{7}{10}$ = _____
Therefore, result is _____.

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

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

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: 35*** .....

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: 36*** .....

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.

# Algebra

| Topics to be Improved | |
|---|---|
| **Monomials, binomials, trinomials and polynomials** | Types of algebraic expression |

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

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

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: 38*** .....

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: 39*** .....

$5m^2 + m + 0$ 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.