KENDRIYA VIDYALAYA SANGATHAN,
REGIONAL OFFICE LUCKNOW

BRIDGE COURSE FOR CLASS VII
SESSION 2024-25
SUBJECT : - MATHEMATICS

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DAY - 1
NUMBERS

- **COMPARING NUMBERS** :- A number having more number of digits will be greater and a number having less number of digits will be smaller.
- **ORDERING OF NUMBERS :-**

  a) Ascending order :- smallest to greatest number

  b) Descending order :- greatest to smallest number (explain with example)
- **INDIAN SYSTEM OF NUMERATION** :-

Periods	**Arabs**		**Crores**		**Lakhs**		**Thousands**		**Ones**		
	Ten Arabs (10,00,00,00,000)	One Arab (1,00,00,00,00,000)	Ten Crores (10,00,00,000)	One Crore (1,00,00,00,000)	Ten Lakhs (10,00,000)	One Lakh (1,00,000)	Ten Thousand(10,000)	One Thousand (1,000)	Hundred (100)	Tens (10)	Ones (1)

INTERNATIONAL SYSTEM OF NUMERATION :-

PERIODS	BILLIONS	MILLIONS	THOUSANDS	ONES

PLACES	HUNDREDBILLION	TENBILLION	BILLION	HUNDREDMILLION	TENMILLION	MILLION	HUNDREDTHOUSANDS	TENTHOUSANDS	THOUSANDS	HUNDREDS	TENS	ONES
	100,000,000,000	10,000,000,000	1,000,000,000	100,000,000	10,000,000	1,000,000	100,000	10,000	1,000	100	10	1

PLACE VALUE:-

The place value is the position of each digit in a number which is determined as ones, tens, hundreds, thousands and so on.

FACE VALUE:

Actual value of the digit in a number.

ASSESSMENT:-

LEVEL – 1

1. Compare the following numbers.

(i) 75462 and 73567 (ii) 54329 and 54399 (iii) 333375 and 33377

2. Find the sum of place value and face value of

(i) 8 in 43836 (ii) 6 in 56412 (iii) 2 in 53217

3. Place commas correctly and write numerals
(i) four lakh seventy five thousand three hundred six.
(ii) three crore five lakh forty two

4. Use the given digits without repetition and make the greatest and smallest 4 digits number.
(i) 2,8,7,4 (ii) 9, 7, 4, 1 (iii) 4, 7, 5, 0

5. How many centimeters make a kilometer?

LEVEL - 2

1. Find the difference between the greatest and the least numbers that can be written using the digits 6, 2, 7, 4, 3 each only once.

2. The smallest 4 digits number with different digits is …….
3. Find the difference between greatest five digits number and smallest five digits number.

4. Assertion (A) 1 crore = 10 million
Reason (R) The smallest number of 8- digit is 1,00,00,000.
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is False but R is true.

DAY -2

MORE ABOUT NUMBERS

The counting numbers 1, 2, 3, 4, …… are called natural numbers, denoted by N.

Predecessor:- If we subtract 1 from any natural number, then we get the predecessor of that number.

Successor:- If we add 1 to any natural number, then we get the successor of that number.

Whole Number:

The natural numbers along with zero form the collection of whole numbers, denoted by W.

Number Line:

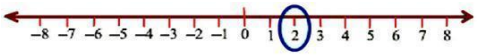
To represent whole numbers on a number line. Draw a line and mark a point on it and label it 0 (zero).

Addition and subtraction of integers on a number line

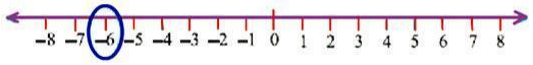
Draw a number line. In the number line the positive numbers are to the right side and the negative numbers are to the left side.

Thus, we have integers on the number line as shown in the below figure.

(i) In order to mark +2 on the number line, we move 2 points to the right side of the zero.



(ii) In order to mark -6 on the number line, we move 6 points to the left side of the zero.



To add -2 to 3 we will start from -2 and move 3 places on the number line in a positive direction i.e. on the right side, so that we will reach 1. Hence the answer is positive 1 or 1. Similarly we can explain subtraction of integers on number lines.

Assessment:

LEVEL - 1

1. Which number is the smallest whole number ?
2. Write the three whole numbers occurring just before 10001.
3. Write three successors of 9999.
4. Which number is smallest natural number.

LEVEL – 2

MCQ:-

1. Which of the following is an odd composite number?
A.7 B.9 C. 17 D. 20

2. Which of the following is a prime number?
A. 69 B. 87 C. 91 D. 97

3. The sum of the prime factors of 1729?
A. 13 B.19 C. 32 D. 39

4. Which of the following is a pair of co- prime numbers?
A. 8, 45 B. 3, 18 C. 5, 35 D. 6, 69

5. Which of the following numbers is divisible by 3?
A. 50762 B. 42063 C. 52871 D. 37036

6. The digit by which 'a' should be replaced in 54a281 so that the number formed is divisible by 9 is
A. 6 B. 7 C. 8 D. 9

7. The HCF of 144 and 198 is
A. 6 B. 9 C. 12 D. 18

8. The LCM of 30 & 45 is..
A. 15 B. 90 C. 125 D. 180

9. The only natural number which has exactly one factor is ……..

DAY 3
INTEGERS

NATURAL NUMBERS:- Counting Numbers i.e, 1, 2, 3, 4, 5 ……
WHOLE NUMBERS:- Include zero with natural numbers.

NEGATIVE NUMBERS:- Numbers which are less than 0 are called negative numbers. -1, -2 ……
INTEGERS:- collection of whole numbers with negative numbers are called integers.

ORDERING OF INTEGERS:-

$-4 < -3 < -2 < -1 < 0 < 1 < 2 < 3 < 4$

ADDING OF INTEGERS:
$(+3) + (+2) = +5$
$(-2) + (-3) = -(2 + 3) = -5$
$(-3) + (+2) = -3 + 2 = -1$

ADDITIVE INVERSE:- when added to each other give the sum zero.

ASSESSMENT:
<u>LEVEL</u> - 1

1. Write the answers of the following.
(i) $(+11) + (+6)$ (ii) $(-11) + (-6)$

2. Find the solution using number line
(i) $(+5) + (+3)$ (ii) $(-5) + (-3)$

3. Using number line write the integer which is
(i) 2 more than -1 (ii) 5 less than 2

4. Solve it .
(i) $(+5) + (-2)$ (ii) $(-7) - (+2)$

<u>LEVEL</u> - 2

1. Write the additive inverse of -121.

2. Write six different integers whose sum is 7.

3. Using Number Line write the integer which is

(i) 3 more than -3 (ii) 2 less than -2

4. Solve it using number line.
(i) (+5) + (-2) (ii) (-7) – (+2)

DAY 4
PLAYING WITH NUMBERS

Factors : Factors of a number divides the number completely without leaving any remainder.
e.g 1, 2, 3 and 6 are factors of 6.

Multiple: A number is a multiple of each of its factors.

Common Factors: The factors which are common to each of the given numbers.

Common Multiples: The multiples which are common to each of the given numbers.

Co-prime numbers: Two numbers which have only 1 as their common factor.
e.g. 8 and 25 are co-prime numbers.

Prime Factorisation: Representation of a natural number as the product of a prime numbers

L.C.M. (Lowest Common Multiple) : Smallest multiple out of common multiples of two or more numbers.
L.C.M. can be done by two methods :- a) Prime Factorization Method
b) Division Method

H.C.F.(Highest Common Factor) :- Greatest factor out of common factors of two or more numbers.
H.C.F. is done by prime factorization method.

ASSESSMENT

LEVEL - 1

1. Give the factorisation of the following numbers.

(i) 136, (ii) 252

2. Find the LCM of 160, 170 and 90.
3. Find HCF of 20, 30 and 35.
4. Write LCM can be done by which two methods.

LEVEL - 2

1. Five bell begin to toll together at intervals of 9 sec, 6 sec, 4 sec, 10 sec and 8 sec repectively, how many times will they toll togetherin the span of 1 hour.
2. Find the LCM of 120, 136 and 100.
3. { Sudoku can be given for playing with numbers}

DAY 5
FRACTIONS

A **Fraction** is a number representing a part of a whole number.

Fraction = Numerator/ Denominator

{ Denominator can never be zero. }

LIKE FRACTION : Fractions having same denominator are called like fractions.

UNLIKE FRACTION : Fractions having different denominator are called unlike fractions.

ADDITION OF LIKE FRACTIONS : We add their numerators keeping denominator unchanged and then write it in simplest form.

SUBSTRACTION OF LIKE FRACTIONS : We subtract the smaller numerator from the greater, keeping denominator unchanged and then write it in simplest form.

SIMPLEST FORM OF A FRACTION : A fraction is said to be in the simplest form if its numerator and denominator have no common factor except 1.

ASSESSMENT:

LEVEL- 1

1. Fraction is a part of _____.

a) Whole b) Half
c) Quarter d) None of these

2. Equivalent fraction of $^{32}/_{45}$.

a) $^{33}/_{46}$ b) $^{64}/_{90}$
c) $^{45}/_{32}$ d) None of these

3. Which one is a proper fraction?

a) $^{68}/_{32}$ b) $2^{3}/_{4}$
c) 54 d) $^{23}/_{45}$

4. Which one is a mixed fraction?

a) $^{68}/_{32}$ b) $2^{3}/_{4}$
c) 54 d) $^{23}/_{45}$

5. What is the improper fraction for $2^{3}/_{4}$?

a) $^{13}/_{4}$ b) $^{11}/_{3}$
c) $^{11}/_{4}$ d) None of these

6. Reciprocal of $^{7}/_{25}$ is _____.

a) $^{7}/_{25}$ b) $^{25}/_{7}$
c) $^{14}/_{50}$ d) None of these

7. Sum of $^{2}/_{9}$, $^{4}/_{9}$ and $^{1}/_{9}$ is equal _____.

a) $^{5}/_{9}$ b) $^{7}/_{9}$
c) $^{9}/_{7}$ d) None of these

8. What is the multiplicative inverse of $^{3}/_{4}$?

a) $^{3}/_{4}$ b) 1
c) 0 d) $^{4}/_{3}$

LEVEL – 2

1. Which of the following is a proper fraction?
(a) 4/3
(b) 3/4
(c) 13/4
(d) 21/5

2. Which of the following is an improper fraction?
(a) 1/2

(b) 3/7
(c) 7/3
(d) 3/15

3. Which of the following is a fraction equivalent of 2/3?
(a) 4/5
(b) 8/6
(c) 10/25
(d) 10/15

4. A fraction equivalent to 3/5is
(a) 3+2/5+2
(b) 3-2/5-2
(c) 3×2/5×2
(d) None of these

5. If 5/12 is equivalent of x/3, then x =
(a) 5/4
(b) 4/5
(c) 5/3
(d) 3/5

6. Which of the following are like fractions?
(a) 3/5, 3/7, 3/11, 3/16
(b) 5/11, 7/11, 15/11, 2/11
(c) 2/3, 3/4,4/5, 6/7
(d) None of these

7. If 11/4 = 77/x, then x =
(a) 28
(b) 77/28
(c) 44
(d) 308

8. 1/ (2 1/3) +1/ (1 3/4) is equal to
(a) 7/14
(b) 12/49
(c) 4 1/12
(d) None of these

9. If 1/3 + 1/2 + 1/x = 4, then x = ?
(a) 5/18
(b) 6/19
(c) 18/5
(d) 24/11

10. If 1/2 + 1/x = 2, then x =
(a) 2/5
(b) 5/2
(c) 3/2
(d) 2/3

DAY 6
DECIMALS

DECIMALS: A number which has a whole number and the fractional part separated by a decimal point.
e.g 2.5, 3.825, 4.93

COMPARISION OF DECIMALS: Convert the decimals into like decimals and then compare the whole part or tenth part or hundredth part and so on, to compare the decimals.
e.g. 2.02 > 1.02
1.12 > 1.02

ADDITION AND SUBTRACTION OF DECIMALS:
{explain with examples }

REPRESENTATION OF UNITS like money, length, weight, etc. using decimal.
{explain with examples }

ASSESSME NT :
LEVEL - 1

1. Arrange the following decimal numbers in ascending order.
   3.74, 2.791, 6.002, 6.2, 4.91

2. Express in kilometers using decimals.
   (i) 15 km 245 m
   (ii) 19l 48 ml

3. Express as rupees using decimals.
(i) 5 paise (ii) 75 paise (iii) 50 rupees 90 paise

LEVEL - 2

1. What should be added to 25.5 to get 50.?

2. What should be subtracted from 117.47 to get 47.95 ?

3. Express in kilograms using decimals
(i) 2 g (ii) 100 g (iii) 3750 g (iv) 5kg 8 g

4. Sunita travelled 15 km 268 m by bus, 7 km 7 m by car and 500 m on foot in order to reach her school. How far is her school from her residence.

DAY 7
ASSESSMENT

LEVEL - 1

Question1.
3×10000+0×1000+8×100+0×10+7×13×10000+0×1000+8×100+0×10+7×1 is same as
(A) 30087
(B) 30807
(C) 3807
(D) 3087

Question 2. 1 billion is equal to
(A) 100 millions
(B) 10 millions
(C) 1000 lakhs
(D) 10000 lakhs

Question 3. In Indian System of Numeration, the number 61711682 is written, using commas, as _____.

Question 4. The smallest 4 digit number with different digits is _____ .

Question 5. Population of Agra and Aligarh districts in the year 2001 was 36,20, 436 and 29,92,286, respectively. What was the total population of the two districts in that year?

LEVEL - 2

Question 1. In one state, the number of bicycles sold in the year 2002-2003 was 7,43,000. In the year 2003-2004, the number of bicycles sold was 8,00,100. In which year were more bicycles sold? and how many more?

Question 2. The town newspaper is published every day. One copy has 12 pages. Everyday 11,980 copies are printed. How many total pages are printed everyday?

Question 3. The number of sheets of paper available for making notebooks is 75,000. Each sheet makes 8 pages of a notebook. Each notebook contains 200 pages. How many notebooks can be made from the paper available?

Question 4. Insert comas in appropriate place and write following numbers according to Indian and international system.

(a)1900218

(b)50500401

(c)206008010

Question 5. Write the smallest seven digits number.

DAY 8

UNDERSTANDING ELEMANTARY SHAPES

LINE SEGMENT:

{explain with examples }

COMPARISION USING RULER AND DIVIDER:

{explain with examples }

ANGLE

Angel form by two rays with same initial point.

STRAIGHT ANGLE

An angle equal to 180◦

ACUTE ANGLE

An angle smaller than right angle

OBTUSE ANGLE

An angle larger than right angle but less than straight angle.

RIGHT ANGLE

An angle equal to 90◦

REFLEX ANGLE

An angle larger than straight angle.

PERPENDICULAR LINES : Two lines intersect each other at right angel.
PERPENDICULAR BISECTOR :- It is a line segment perpendicular to the line segment that divides the segment into two equal parts.
SCALENE TRIANGLE :A triangle having all three unequal sides.
ISOCELES TRIANGLE : A triangle having two equal sides.
EQUILATERAL TRIANGLE : A triangle having three equal sides.
QUADRILATERAL : A polygon having four sides, four angles and two diagnols.
RECTANGLE: Opposite sides are equal and all four angle are at 90 degrees.
SQUARE : All sides are equal and all four angles are at 90 degrees.
PARALLELOGRAM : Opposite sides are parallel and equal.
RHOMBUS: Opposite are parallel and all four sides are equal and diagonals bisect each other at 90 degrees.

ASSESMENT:

LEVEL- 1

1. What is the difference between a square and a rhombus.
2. A bicycle wheel having 11 spokes at equal distance on the circumference and intersect at the centre of the wheel. Calculate the angle between the spokes.Also confirm that whether all the angles are equal or not .
3. Tell the difference between acute angle and obtuse angle.

LEVEL – 2

1. What is the difference between rhombus and parallelogram?
2. Tell the difference between acute angle and reflex angle.

DAY 9
MENSURATION

Perimeter:

The distance covered along the boundary forming a closed figure, when you go round the figure once is called perimeter.

- Perimeter of Equilateral Triangle = 3 x length of a side
- Perimeter of square = 4 x side
- Perimeter of rectangle =2 x (length + breadth)

AREA : Amount of surface enclosed by a closed figure is called its area.

- Area of rectangle = Length x Breadth
- Area of square = side x side

ASSESSMENT

LEVEL - 1

1. find the perimeter of a rectangle whose side are 1 meter 30 cm and 70 cm.
2. find the cost of fencing a rectangular path of length 200 meter and width 150 meter at the rate of Rs. 25 per meter.
3. the ratio of the sides of a rectangle is 5 : 4 and its perimeter is 72 cms. Find the length and width of rectangle.

LEVEL - 2

1. find the perimeter of a square whose each side is 1 meter 30 cm
2. the area of rectangle is 630 sq cm and width is 15 cm. what is its length.
3. length of a rectangle is 3 times its breadth . perimeter of the rectangle is 40 cms. Find its length and width.
4. find the perimeter of a triangle whose three sides are 5cm, 6cm and 7 cm respectively.
5. if the area of the square is 36 sq cm, then find its perimeter.

DAY 10
MORE ABOUT FRACTION

(i) **by using LCM, add or subtract the given fraction**

$$\frac{5}{6}+\frac{2}{5}=\frac{25}{30}+\frac{12}{30}=\frac{25+12}{30}=\frac{37}{30}$$

$$\frac{5}{6}-\frac{2}{5}=\frac{25}{30}-\frac{12}{30}=\frac{25-12}{30}=\frac{13}{30}$$

(ii) *To multiply a mixed fraction to a whole number, first convert the mixed fraction to an improper fraction and then multiply*

therefore $3\times2\frac{5}{7}=3\frac{19}{7}=\frac{57}{7}=8\frac{1}{2}$

- Find $\frac{1}{2}$ of (i) 24 (ii) 46
  ½*24 = 12 and ½*46 = 23
- Multiply the given fraction $\frac{5}{7}\times\frac{12}{7}=\frac{60}{7}$

Assessment:

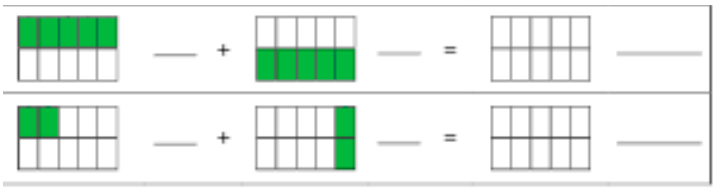
LEVEL - 1

Q.1 .Add and shade the total parts in the answer picture. Write an additional sentence.

(a)

(b)

(c)



LEVEL -2

Q. Michael finished colouring a picture in 7/12 hour. Vaibhav finished colouring the same picture in 3/4 hour. Who worked longer? By what fraction was it longer?

DAY 11
SYMMETRY

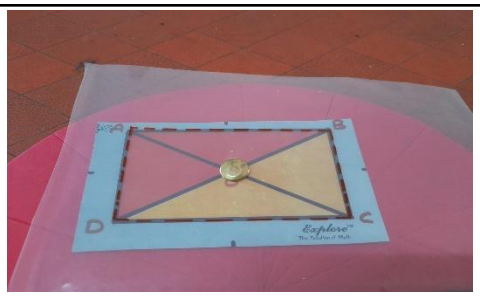
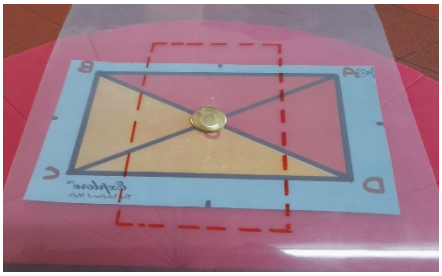
Activity-1 Draw two identical Rectangles, one-ABCD on a piece of paper and the other on a transparent sheet. Mark the points of intersection of their diagonals, O Place the Rectangles as shown in image-

Stick a pin into the shapes at the point O.

Now turn the transparent shape in the clockwise direction.

How many times do the shapes coincide in one full round?

What is the order of rotational symmetry?

Activity-2 Repeat this activity for Rhombus as shown in image below-


ASSESSMENT:

LEVEL-1

Q1 Draw five symmetrical objects from your surroundings and draw their line of symmetry.

Q2. Name the quadrilaterals which have both line and rotational symmetry of order more than one.

LEVEL- 2

Q3. Draw a triangle with both line and rotational symmetries of order more than 1.

Q4 Name four capital English Alphabets having 2 line of symmetry each.

DAY 12

RATION & PROPORTION

LEVEL - 1

1. Express 25 : 45 ratios into it's simplest form.

2. What is the simplest form of 32 : 24?

3. Find the simplest form of the given ratio 70 : 105.

4. Find the ratio of Rs. 35 to Rs. 175, convert it to it's simplest form.

5. Find the ratio of 75 paise to Rs. 5.

LEVEL-2

1. Find the ratio of 2 years to 6 months.

2. Find the ratio of 45 m to 1 km.

3. A packet of salt weighs 25 kg and a packet of sugar weighs 35 kg. Find the ratio of weight of salt to weight of sugar.

4. Out of 45 students in a class, 20 students are boys and the remaining are girls. Find the ratio of boys to girls and girls to boys.

5. Express 4 : 5 in fraction form.

DAY 13
PATTERN

LEVEL- 1

1. Patterns in numbers:

(i) 01, 11, 21, 31, 41, ……., ……., …….

(ii) 02, 04, 06, 08, 10, 12, 14, ……., ……., …….

(iii) 05, 07, 09, 11, 13, 15, ……., ……., …….

(iv) 50, 55, 60, 65, 70, 75, ……., ……., …….

(v) 800, 80, 8, ……., ……., …….

(vi) 8, 80, 800, 8000, ……., ……., …….

LEVEL-2

2. Continue the growing patterns of the numbers:

(i) 31, 36, 41, 46, ……., ……., …….

(ii) 8, 32, 40, 48, 56, ……., ……., …….

(iii) 9, 18, 27, 36, 45, ……., ……., …….

(iv) 15, 18, 21, 24, ……., ……., …….

Some more questions based on patterns

DAY 14
ASSESSMENT

LEVEL -1

Q No:1- Draw five symmetrical objects from your surroundings and draw their line of symmetry.

Q No:2- A vehicle covers a distance of 43.2 km in 2.4 litres of petrol. How much distance will it cover in one litre of petrol?

Q NO:3- Find the sum by suitable rearrangement:123+25+77..

Q NO:4- Find LCM of 80,160 and 40.

LEVEL-2

Q NO:1- Find Prime factors of given numbers:

50 ,250 and 132

Q NO:2-. Write the identification of different types of angles

Q NO:3- Q1 Draw a line L. Draw a perpendicular through any point P on it. Take a point Q on perpendicular 5cm away from P. Draw a line through Q parallel to L.

Q NO:4- What is the difference between a ray and a line?