INTERNATIONAL INDIAN SCHOOL, DAMMAM

MIDDLE SECTION

WORKSHEET for MID-TERM EXAM – 2024 - 25

CLASS: VIII **SUBJECT: MATHEMATICS**

CHAPTER – 1 – RATIONAL NUMBERS

1. The additive identity for rational numbers is:
   a) 0 b) 1 c) -1 d) none of these
2. The multiplicative identity for rational numbers is _____
   a) -1 b) 0 c) 1 d) none of these
3. Among the following numbers, which is not a rational number?
   a) $\frac{6}{7}$ b) $\frac{-1}{2}$ c) 0 d) $\frac{1}{0}$
4. Name the property used in the given expressions:
   a) $\frac{2}{5} + \frac{11}{17} = \frac{11}{17} + \frac{2}{5}$
   b) $\frac{-2}{3} \times 1 = 1 \times \frac{-2}{3} = \frac{-2}{3}$
   c) $\frac{4}{-11} \times \frac{-11}{4} = 1$
   d) $\frac{5}{9} + (\frac{3}{7} + \frac{7}{15}) = (\frac{5}{9} + \frac{3}{7}) + \frac{7}{15}$
5. Verify the property: a × (b + c) = (a × b) + (a × c) of rational numbers by taking:
   a = $\frac{-1}{2}$, b = $\frac{3}{4}$ and c = $\frac{1}{4}$
6. Tell which property allows you to compute $\frac{1}{5} \times (\frac{5}{6} \times \frac{7}{9})$ as $(\frac{1}{5} \times \frac{5}{6}) \times \frac{7}{9}$
7. Assertion (A) – Rational numbers are not closed under addition.
   Reason (R) – A rational number is a number that is in the form of $\frac{p}{q}$ where p and q are integers and q is not equal to zero.
   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
8. Using appropriate properties find:
   (i) $-\frac{2}{3} \times \frac{3}{5} + \frac{5}{2} - \frac{3}{5} \times \frac{1}{6}$ (ii) $\frac{2}{5} \times (-\frac{3}{7}) - \frac{1}{6} \times \frac{3}{2} + \frac{1}{14} \times \frac{2}{5}$

CHAPTER – 2 – LINEAR EQUATIONS IN ONE VARIABLE

1. What is the solution of the equation 3x + 5 = 14?
   a) x = 3 , b) x = 4, c) x = 5, d) x = 3.5

2. Which of the following is a linear equation in one variable?
   a) $2x^2$ + 3x + 1 = 0 , b) 4x + 7 = 3(x + 2) , c) x^3 - 5x + 6 = 0 , d) x + 3y = 7

3). What is the solution to the equation 6x - 2 = 4x + 10?
   a) x = 3 ,b) x = 4 , c) x = 5 , d) x = 6

4) Assertion (A) – The solution of the equation 3x + 4 = 20 – x is 4

Reason (R) – The value of the variable which makes left hand side equal to right hand side in the given equation is called the solution of the equation

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

5) Assertion: $2x+3=5$ has one solution.

Reason: A linear equation in one variable has infinitely many solutions.

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

Solve the equation:

6) $2 - x + \frac{15}{2} x = 8 - \frac{11}{2} x$

7) $4(3y+2) -6(6y+2) =2(y-8)-6(6y+4) +16y$

8) $\frac{5y-3}{2} = \frac{2y+3}{5}$

9) $\frac{x+2}{3} = \frac{5}{6} + \frac{x-1}{4}$

10) $4x-2(3x-5) = 3x+6$

CHAPTER – 3 - UNDERSTANDING QUADRILATERALS

CHOOSE THE CORRECT ANSWER**:**

1. A quadrilateral which has 2 pairs of equal adjacent sides but unequal opposite sides is called a _____

   a) Square, b) Kite, c) Rhombus, d) Rectangle

2. The quadrilateral whose diagonals are perpendicular to each other is:

   a) Parallelogram, b) Rectangle, c) Trapezium, d) Rhombus

3. Which one of the following is a regular quadrilateral?

   a) Square, b) Trapezium, c) Kite, d) Rectangle

4. The perimeter of a parallelogram whose adjacent sides have lengths equal to 12 cm and 7 cm is _____

   a) 17cm, b) 38cm, c) 108cm, d) 19cm

5. ABCD is a rectangle and AC & BD are its diagonals. If AC = 8 cm, then BD is _____

   a) 8cm, b) 16cm, c) 4cm, d) 32cm.

ASSERTION AND REASON QUESTIONS

6. Assertion (A) – The sum of the measures of the exterior angles of a hexagon is 360°.

   Reason (R) – The sum of the measures of the exterior angles of any polygon is 360°.

   a) Both A and R are true and R is the correct explanation of A.

   b) Both A and R are true and R is not the correct explanation of A.

   c) A is true and R is false.

   d) A is false but R is true.

7. Assertion (A) – ABCD is a square. The diagonal AC and BD intersect at O. The measure of < AOB is 90°.

   Reason (R) – The diagonals of a square bisect each other at right angles.

   a) Both A and R are true and R is the correct explanation of A.

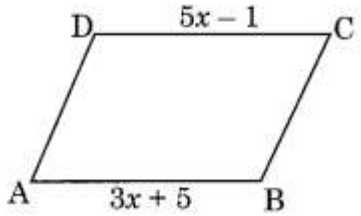
   b) Both A and R are true and R is not the correct explanation of A.

   c) A is true and R is false.

   d) A is false but R is true.

ANSWER THE FOLLOWING:

8. In the given figure, ABCD is a parallelogram. Find x.

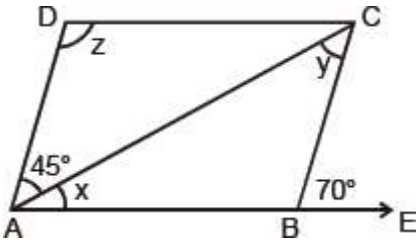


9. Find the number of sides of a regular polygon if the measure of an interior angle is 140°.

10. The adjacent angles of a parallelogram are in the ratio of 4:5. Find the measure of each angle.

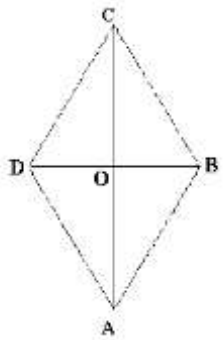
11. ABCD is a rectangle whose diagonals meet at O. If OA = 4x – 7 and OD = 2x + 3, find x. Also find the lengths of the diagonals AC and BD.

12. Find the values of x, y and z in the following parallelogram.



CASE STUDY QUESTIONS

13. Anushka made a rangoli. After making it she found that the shape of the rangoli resembles a rhombus. She named the rhombus as ABCD. Anushka found that the diagonals of it intersect at a point. She named the point of intersection as O.



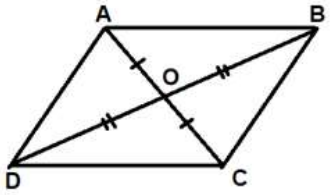
   a) What can you say about the diagonals of the rangoli ABCD?
      i) They are perpendicular to each other.
      ii) They bisect each other.
      iii) They are perpendicular bisectors of each other.

iv) They are equal and bisect each other

b) Anushka wants to place a garland of marigold around her rangoli. What will be the length of the garland if the side of the rhombus is 13 cm?
   i) 13cm ii) 26cm iii) 52cm iv) 39cm

c) The length of one of the diagonals of the rangoli is 24 cm. Find the length of the other diagonal.

14. Amal has a land in the shape of a parallelogram. He wants to make a garden in that land. He wants to plant rose plants diagonally and jasmine plants along the sides.



a) The opposite sides of the garden which is in the shape of a parallelogram are
   i) equal
   ii) unequal
   iii) curves
   iv) bisectors

b) The adjacent angles of a parallelogram are
   i) acute
   ii) equal
   iii) supplementary
   iv) complementary

c) If $< A = (3x + 4)°$ and $< D = (2x + 6)°$, then find the measure of $< B$.

CHAPTER – 4 DATA HANDLING

I. Choose the correct answer:

1.Which of the following is the probability of an impossible event?
a) 0 b)1 c) 2 3) none of these

2.A coin is tossed. Which of the following is the probability of getting a head?
a) 0 b) 1 c) ½ d) none of these

3.A bag has 4 red balls and 4 green balls, what is the probability of getting a red ball randomly?
a) ¼ b) 1/8 c) 1/2 d) 0

4.If a die is thrown in the air, the probability of getting even numbers is:
a) ½ b) 1/6 c) 1/3 d)2/3

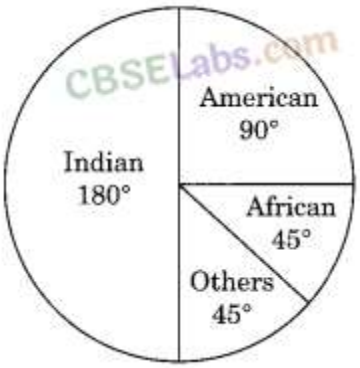
5. A ---------- shows the relationship between a whole and its parts.
a) bar graph b)double bar graph c) Pie chart d) none of these

Assertion and Reasoning :

6. Assertion (A) : A circle graph shows the relationship between a whole and its part.
Reason (R) : The whole circle is divided into sectors.
   a) A is correct and R is the correct explanation of A
   b) A is correct and R is not the correct explanation for the statement A.

c) A is correct and R is false.
d) A is false and R is correct

II. Solve the following:
7.The following pie chart depicts the percentage of students, nationwide. What is the percentage of
(i) Indian students (ii) African students?



8. A bag contains 144 coloured balls represented by the following table. Draw a pie chart to show this information.

Colour	Number of balls
Red	12
Yellow	18
Blue	28
Green	42
White	44

9.A basket contains 5 red marbles, 3green marbles and 2 blue marbles. If a marble is drawn at random from the bag ,what is the probability that it is
i) a red
ii)a non green ball
iii) a white ball

III CASE STUDY:
10. The monthly salary of an average person is Rs. 15,000. The central angle of the given sector representing his expenses on food and house rent on a pie chart is 60°.

i) The amount he spends on his food and house rent is
(a) Rs. 5000 (b) Rs. 2500 (c) Rs. 6000 (d) Rs. 9000
ii) the angle represented for the amount Rs 3750 spend on bus fair is
a) 90 ° b) 40 ° c) 80 ° d) 140 °

iii) what is the angle for the amount Rs.4500 is
a) 100 ° b) 108 ° c) 95 ° d) 105 °

CHAPTER – 5 – SQUARES AND SQUARE ROOTS

I.CHOOSE THE CORRECT ANSWERS
1. A perfect square number between 80 and 90 is
a) 86 b) 82 c) 83 d) 81

2. How many natural numbers lie between 17^2 and 18^2?

a) 36 b) 32 c) 34 d) 38

3. A perfect square number having n digits where n is even will have a square root with

a) [n+1] digits b) $[\frac{n}{2}+1]$ digits c) $[\frac{n}{2}]$ digits d) None

4. The unit digit of 109^2 is

a) 1 b) 9 c) 7 d) 2

5. What could be the possible "one's digit" of the square root of 625?

a) 0 b) 4 c) 5 d) 8

6. Assertion (A) –Between 50 and 60, the perfect square number is 54.

Reasons (R) –A perfect square is a number that can be expressed as the product of a number by itself.

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

7. Assertion (A) –The number of zeros in the square of the number 100 is 4.

Reasons (R) – The number of zeros in any perfect square number is always even.

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

II.ANSWER THE FOLLOWING QUESTIONS

8. 9216 students were sitting in a lecture room in such a manner that there were as many students in the row as there were rows in the lecture room. How many students were there in each row of the lecture

9.Find the square root of 17.64.

10. **Find the smallest whole number by which 2880 should be multiplied to get a perfect square number. Also, find the square root of the square number so obtained.**

11. Find the least number which must be added to 4931to get a perfect square. Also, find the square root of the obtained number.

12. In a right triangle ABC, ∠B = 90°. a. If AB = 7 cm, BC = 24 cm, find AC.

III.CASE STUDY QUESTIONS

Case Study 1: Building a Square Garden

Rina plans to build a square garden in her backyard. She has enough materials to cover an area of 256 square meters.

i)What should be the length of each side of the garden?

a) 16 m b)14 m c)24 m d)26 m

ii) What formula is used in finding the length of each side?

a) A=side x side b) A=4 x side c) A=side/4 d) A= side +side

iii) If she decides to increase the area by adding 144 square meters, what will be the new side length of the garden?

Case Study 2: Observe the given pattern

$7^2 = 49$
$67^2 = 4489$
$667^2 = 444889$
$6667^2 =$ _____
$66667^2 =$ _____
$666667^2 =$ _____
$6666667^2 =$ _____

CHAPTER – 6 – CUBE AND CUBE ROOTS

1. What is cube of 3? a) 6 b) 9 c) 27 d)81

2. Which of the following is a perfect cube? a) 10 b) 125 c)50 d) 100

3. Which of the following statements is true?

a) The cube of an even number is always odd

b) The cube of a number is always smaller than the number itself

c) The cube of a negative number is positive

d) A number that ends in 2 when cubed will always end in 8

4. If $x^3 = 64$ what is the value of x? a)3 b) 5 c) 7 d) 4

5. If the volume of a cube is 216 cubic units, what is the length of one side of the cube? a) 5 units b) 6 units c) 8 units d) 9 units

Assertion Reasoning Questions:

Chose the correct Options from below

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.

6. Assertion (A): The cube of an even number is always even.

Reason (R): The product of three even numbers is even.

7. Assertion (A): 243 is a perfect cube

Reason (R): 243 = 3x3x3x3x3

8 CASE STUDY

A shipping company uses cubic boxes to ship items. The length of each side of a cube-shaped box is 5 meters.

a)Calculate the volume of the cubic box.

b) If the company decides to use a larger cubic box with each side doubled, what will be the new volume of the cubic box?

c)How many smaller boxes with a volume of 125 cubic meters each can fit into the larger box?

9. Find the cube root of 1728?

10. Find the smallest number by which 128 must be divided to get a perfect cube?