



# Delhi Public School, Howrah

Half-Yearly Examination (2024-25)

Class-VIII

Care must be taken not to write anything on the question paper. All the questions must be attempted in the correct sequence

Subject: - Mathematics

Time: 3 Hours

Maximum Marks: 80

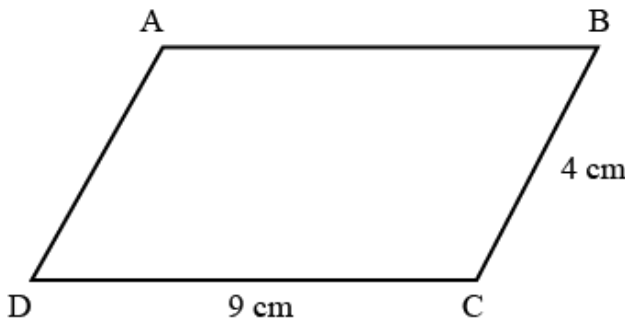
## General Instructions:

1. This Question Paper has five sections A, B, C, D and E.
2. Section A has 20 MCQs carrying 1 mark each.
3. Section B has 5 questions carrying 2 marks each.
4. Section C has 6 questions carrying 3 marks each.
5. Section D has 4 questions carrying 5 marks each.
6. Section E has 3 case based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.
7. All questions are compulsory. However, an internal choice in 2 questions of 2 marks, 2 questions of 3 marks and 2 questions in 5 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E.

## SECTION A

Section A consists of 20 questions of 1 mark each

**DIRECTION:** In question numbers 1 to 16, there are four choices (a), (b), (c) and (d) out of which **ONLY ONE** is correct.

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|----|---|---|
| 1. | Which of the following is correct?<br>(a) All the rational numbers are natural numbers.<br>(b) All the fractions are rational numbers but all the rational numbers are not fractions.<br>(c) Zero is not a rational number.<br>(d) All integers are whole number. | 1 |
| 2. | The solution of the equation $ax + b = 0$ is<br>(a) $x = \frac{a}{b}$ (b) $x = -b$ (c) $x = \frac{-b}{a}$ (d) $x = \frac{-a}{b}$  | 1 |
| 3. | In parallelogram ABCD, $AB \parallel CD$ and $AD \parallel BC$ and $\angle A = 115^\circ$ , then the other angles of the parallelogram is<br>                                 | 1 |
| 4. | Find the value: $\{5^2 + \sqrt{12^2}\}^3$<br>(a) $25^3$ (b) $37^3$ (c) $41^3$ (d) $43^3$  | 1 |



18.	Which of the following statement(s) is/are correct? (a) Cube of an even number always ends with 0. (b) Cube of an even number ends with only 2. (c) Cube of an even number is always even. (d) Cube of an odd number is always odd.	1
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**DIRECTION:** In the question number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

19.	<b>Assertion(A):</b> $2 + 3 = 5$ is an algebraic equation. <b>Reason(R):</b> An algebraic equation is an equality involving variables. (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.	1
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20.	<b>Assertion(A):</b> A rectangle is a special type of parallelogram. <b>Reason(R):</b> A rectangle has all angles equal to 90 degrees, which means that it satisfies the definition of a parallelogram where opposite angles are equal and the diagonals bisect each other. (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.	1
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**SECTION B**

**Section B consists of 5 questions of 2 marks each**

21.	<p>(a) Ritwik and Saurabh were playing ludo. Each of them has chosen one of the four available colours. The game starts with each player taking turns to roll a die. After a few turns both the boys have all the 4 pieces out to play. While playing the game both have the following conversations. Saurabh while rolling the die said, "Now I will have a composite number." But Ritwik said, "I don't think so, since the probability of a composite number is very less." Find the probability of a composite number in rolling a die.</p> <p style="text-align: center;"><b>[OR]</b></p> <p>(b) Aashu: Have you ever seen a pack of cards? Neha: No, I haven't. Aashu: Then, take this pack of cards and observe all of them. Neha: Oh, what do the alphabets A, K, Q, and J stand for? Aashu: A stands for Ace, K stands for King, Q stands for Queen and J stands for Jack. Neha: Ok Find the probability of selecting a diamond from the deck of cards.</p> <div style="display: flex; justify-content: space-around; align-items: center;">      </div>	 2
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22.	Solve: $25(4x - 5) = 75x + 35$	2
23.	Find the number of sides of a regular polygon whose interior angle is $108^\circ$ .	2
24.	Find the cube root of $\frac{0.343}{512}$ .	2

25. (a) The area of a rectangular field is  $1200\text{m}^2$ , the length of the rectangular field is thrice of its breadth. Find the perimeter of the field.
- [OR]**
- (b) Rahul walks 12 meter north from his house and turns west to walk 35 meter to reach his friend's house. While returning he takes the shortest path from his friend's house to reach back to his house. What distance did he walk while returning?

**SECTION C**

**Section C consists of 6 questions of 3 marks each**

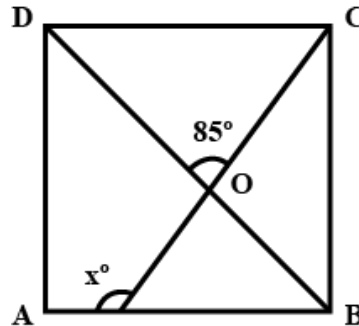
26. A mother and her two daughters got a room constructed for ₹ 60,000. The elder daughter contributes  $\frac{3}{8}$  of her mother's contribution while the younger daughter contributes  $\frac{1}{2}$  of her mother's share. How much do the three contributes individually?

27. Solve:  $\frac{(5x-7)-(2x+3)}{6x+11} = \frac{8}{3}$

28. (a) The sides of a quadrilateral are produced in order. If the measures of exterior angles so obtained are in the ratio 3: 4: 6: 7, find all the angles of the quadrilateral.

**[OR]**

- (b) ABCD is a square in the given figure. Find  $x$ .



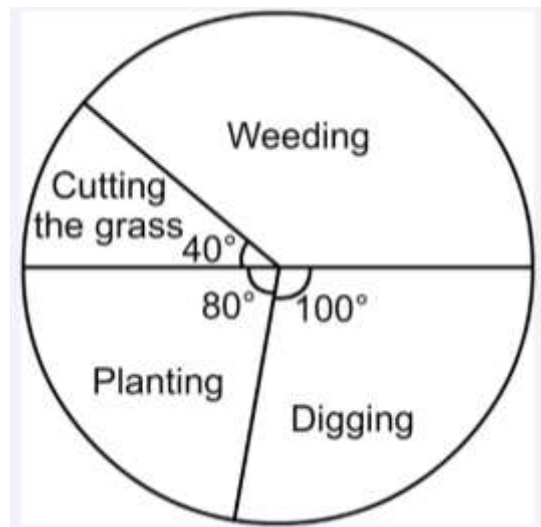
29. What is the least number that should be added to 1385 to get a perfect square? Also find the square root of the perfect square so obtained.

30. (a) Difference between two perfect cubes is 189. If the cube root of the smaller number is 3, then find the cube root of the larger number.

**[OR]**

- (b) Three numbers are in the ratio 2: 3: 4. The sum of the cubes of the numbers is 0.334125, then find the numbers.

31. The pie chart shows some information about the time Aradhana spent working in her garden in a month.



- (i) Find the central angle of weeding.  
(ii) If Aradhana spent 3.5 hours weeding, how much time did she spend on planting?

**SECTION D**

**Section D consists of 4 questions of 5 marks each**

32. (a) Four friends had a competition to see how far they could hop on the foot. The table given below shows the distance covered by each. 5

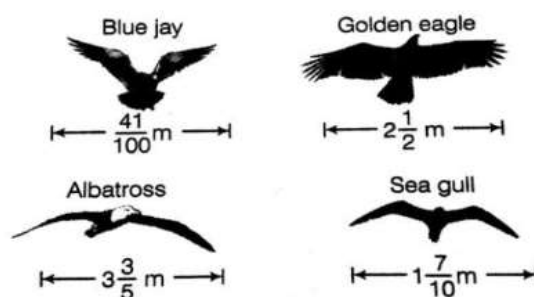
Name	Distance Covered (km)
Ankita	$\frac{1}{30}$
Geeta	$\frac{3}{35}$
Deepa	$\frac{1}{45}$
Gauri	$\frac{2}{15}$

Using the given information answer the following questions.

- (i) Arrange them in ascending order according to their distance covered in the race.  
 (ii) Who walked farther, Ankita or Deepa and by how much?

**[OR]**

- (b) The diagram shows the wingspans of different species of birds.



Use the diagram to answer the question given below.

- (i) How much longer is the wingspan of a Golden eagle than the wingspan of a Blue jay?  
 (ii) What is the total length of the wingspan of a Sea gull and an Albatross?  
 (iii) Which species of bird have the longest wingspan?
33. Sitara is the only child of Mr. and Mrs. Banerjee. They live in a joint family. One day Sitara was getting bored at her home. Suddenly an idea came to her mind and she began to note down the ages of her family members. 5

Sitara's Family	
Name of the members	Age
Sitara's Grandfather	$8 = \frac{2x - 122}{3}$
Mr. Banerjee	$2y + 30 = 3y - 24$
Sitara	$8 + \frac{x}{3} = x$
Mrs. Banerjee	$2(x - 3) = 47 + x$
Sitara's Uncle	$3x - 57 = x + 57$

Using the above story find the age of each family members.

34. Ravi creates a cuboid from clay with dimensions 4 cm, 3 cm and 6 cm. 5
- (i) How many of these cuboids will he need to assemble into a perfect cube?  
 (ii) Find the dimensions of the cube obtained.



35.	In the month of October 2022, a householder spent his monthly salary on different items as given below.					5
	Items	Clothing	Food	House rent	Education	Miscellaneous
	Amount Spent (in ₹)	6000	40000	12000	4000	10000

- (i) Represent the information in the form of a pie chart.  
(ii) What percentage of his money he spent on food and education?

**SECTION E**

**Section E has 3 case based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.**

36. In a small village, there were two farmers, Ratan and Shyamal, who owned fields. Both of them kept records of their profits and losses over the months in terms of rational numbers, where the negative sign indicates loss and the positive sign indicates profit. Ratan and Shyamal recorded their monthly profits and losses as follows:

Ratan's record		Shyamal's record	
Name of month	Profit/Loss (In ₹thousand)	Name of month	Profit/Loss (In ₹thousand)
January	$-\frac{5}{2}$	January	$-\frac{3}{4}$
February	$-\frac{7}{4}$	February	$\frac{8}{5}$
March	$\frac{11}{5}$	March	$-\frac{11}{2}$

After three months, they decided to compare their overall financial status to understand who had faced more severe losses.

- (i) Calculate Ratan's overall profit/loss over three months. 1  
(ii) Calculate Shyamal's overall profit/loss over three months. 1  
(iii) (a) Which month Ratan and Shyamal had the biggest loss? 2  
**[OR]**  
(b) Is the subtraction of rational numbers commutative? To illustrate, use two rational numbers from the given table and show your calculations.

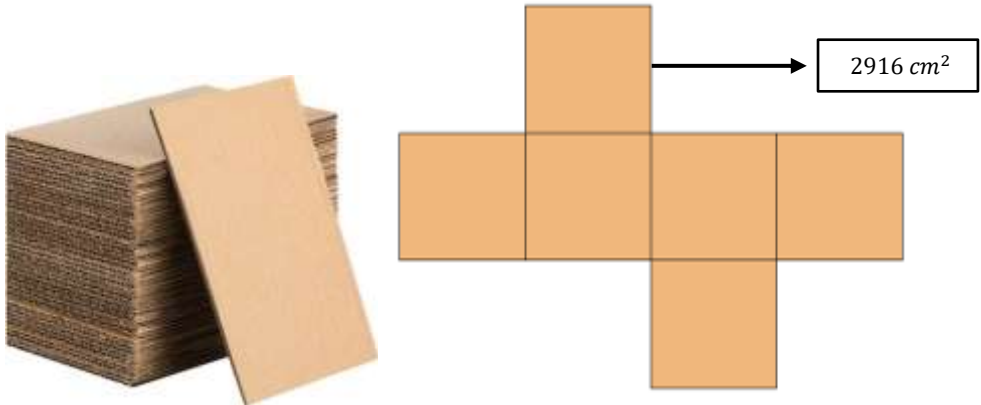
37. In an Indian village, a new community space is being designed to host a variety of activities, including a food festival. The area will be divided into sections using different quadrilaterals. The main food court will be a trapezium shape, a kite-shaped area will host traditional games and a rhombus-shaped area will serve as a dining space. Understanding the angles is crucial for efficient layout and design. Now answer the following questions.



- (i) Are the opposite angles of a kite equal? 1  
(ii) If the perimeter of the traditional game zone is 84 m and one of its sides is 16 m, then find lengths of the other three sides? 1

	<p><b>(iii) (a)</b> The dining space in in the shape of rhombus. If one angle is 70 degrees, find the measures of the other 3 angles.</p> <p style="text-align: center;"><b>[OR]</b></p> <p><b>(b)</b> The main food court is in the shape of trapezium named as <math>ABCD</math> where <math>AB \parallel CD</math>. If <math>\angle A = 55^\circ</math> and <math>\angle B = 70^\circ</math> find the other two angles.</p>	2
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38. Priya is embarking on a project to design a square box. To complete this, she needs to use six square cardboards, each representing one surface of the box. The area of each surface of the box is  $2916 \text{ cm}^2$ . To obtain the necessary cardboards, Priya purchased a large piece of cardboard from the market, which she will cut into the six required squares to assemble her box.



Based on the above illustration give answer the following questions.

<b>(i)</b>	Priya is designing a square box and each surface of the box has an area of $2916 \text{ cm}^2$ . What should be the length of each side of the square cardboard needed for this project?	1
<b>(ii)</b>	Find the perimeter of one surface of the square box.	1
<b>(iii) (a)</b>	If Priya purchases a rectangular piece of cardboard measuring 60 cm by 350 cm, does she have sufficiently large cardboard to cut out all the squares needed for her box? Show the calculations to determine this.  <p style="text-align: center;"><b>[OR]</b></p> <p><b>(b)</b> Find the smallest number by which <math>60 \times 350</math> should be multiplied to make it a perfect square. Find the square root of the perfect square so obtained.</p>	2