

Mathematics

Sample Question Paper – 2

Class 8 (Ganita Prakash Part - I)

Time Allowed: 2 Hours 30 Minutes

Maximum Marks: 60

GENERAL INSTRUCTIONS

1. This question paper has 16 questions. All questions are compulsory.
2. The question paper is divided into FIVE sections - Section A, B, C, D and E.
3. In Section A, Question 1 contains twelve Multiple Choice Questions (MCQs) of 1 mark each.
4. In Section B, Questions 2 to 7 are Very Short Answer (VSA) type questions of 2 marks each.
5. In Section C, Questions 8 to 10 are Short Answer (SA) type questions carrying 3 marks each.
6. In Section D, Questions 11 to 13 are Long Answer (LA) type questions carrying 5 marks each.
7. In Section E, Questions 14 to 16 are source-based/case-study questions carrying 4 marks each.
8. There is no overall choice. Internal choice is provided in one question in Section B, one question in Section C, two questions in Section D, and in the 2-mark part of each question in Section E.
9. Draw neat figures wherever required. Use ruler, compass and set-square wherever appropriate.
10. Use of calculator is not allowed.

SECTION – A

(Multiple-Choice Questions - 1 mark each)

(12 × 1 = 12)

1 (i) Which of the following is a perfect square?

- | | |
|---------|---------|
| (a) 352 | (b) 361 |
| (c) 372 | (d) 392 |

1 (ii) The value of $2^5 \times 2^3$ is:

- | | |
|-----------|--------------|
| (a) 2^8 | (b) 4^8 |
| (c) 2^2 | (d) 2^{15} |

1 (iii) In a base-5 place value system, the landmark numbers are:

- | | |
|--------------------|-------------------|
| (a) 1,5,25,125,... | (b) 1,5,10,15,... |
| (c) 1,10,100,... | (d) 5,10,20,... |

1 (iv) The sum of the interior angles of a quadrilateral is:

- | | |
|-----------------|-----------------|
| (a) 180° | (b) 270° |
| (c) 360° | (d) 540° |

1 (v) A number is divisible by 9 if:

- | | |
|-------------------------|---------------------------------|
| (a) its last digit is 9 | (b) digit sum is divisible by 9 |
| (c) it is even | (d) it ends in 0 |

1 (vi) Which identity is correct?

- | | |
|----------------------------------|-----------------------------|
| (a) $(a + b)^2 = a^2 + b^2$ | (b) $(a - b)^2 = a^2 - b^2$ |
| (c) $(a + b)(a - b) = a^2 - b^2$ | (d) $a(b + c) = ab + c$ |

1 (vii) The simplest form of 42:63 is:

- (a) 2:3 (b) 3:2
(c) 14:21 (d) 6:9

1 (viii) The cube root of 2197 is:

- (a) 11 (b) 12
(c) 13 (d) 14

1 (ix) 10^{-3} equals:

- (a) 1000 (b) $1/1000$
(c) $1/100$ (d) -1000

1 (x) If $47a2$ is divisible by 3, which can be a?

- (a) 1 (b) 2
(c) 4 (d) 5

1 (xi) A rhombus has diagonals that:

- (a) are always equal
(b) bisect each other at 90°
(c) never meet
(d) are parallel

1 (xii) If 5 notebooks cost ₹225, the cost of 8 notebooks at the same rate is:

- (a) ₹320 (b) ₹340
(c) ₹360 (d) ₹400

SECTION – B

Questions 2 to 7: 2 marks each.

(6 × 2 = 12)

2. Find the smallest number by which 972 must be multiplied so that the product becomes a perfect square.

3. (a) Simplify and write in exponential form: $7^6 \div 7^2 \times 7^{-1}$.

OR

3. (b) Express 0.000072 in scientific notation.

4. Write the base-10 number 43 in base-5. Show the place-value reasoning.

5. In a parallelogram, one angle is 68° . Find the other three angles.

6. Without division, determine whether 83,457 is divisible by 9. Give a reason.

7. Divide ₹840 in the ratio 3:4.

SECTION – C

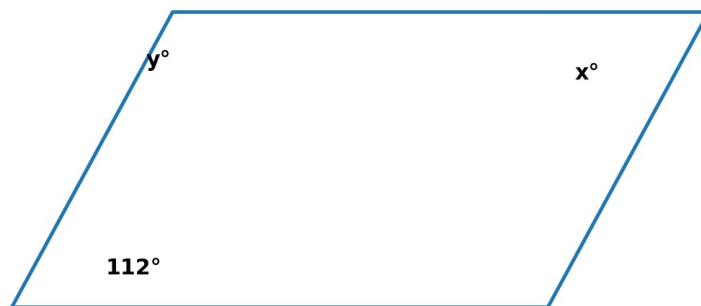
Questions 8 to 10: 3 marks each.

(3 × 3 = 9)

8. Using identities, calculate 497×503 without long multiplication.

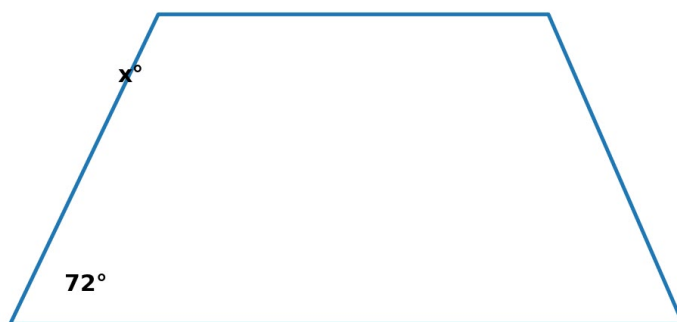
9. The ratio of red beads to blue beads is 5:7. If there are 84 beads in all, find the number of red and blue beads.

10. (a) In the given parallelogram, one interior angle is 112° . Find x and y , giving reasons.



OR

10. (b) In the given trapezium, the parallel sides are marked. If one pair of co-interior angles contains 72° , find the adjacent angle.



SECTION – D

Questions 11 to 13: 5 marks each.

(3 × 5 = 15)

11. (a) Find the square root of 7056 by prime factorisation. Then explain why 7056 is a perfect square.
[3+2]

OR

11. (b) Find the cube root of 13824 by prime factorisation. Then state the least number by which 432 must be multiplied to make a perfect cube.

12. A 6-digit code uses digits 0–9 and repetition is allowed.

(i) How many codes are possible? [2]

(ii) Express the answer using a power of 10. [1]

(iii) Compare this with a 4-digit code and state how many times more codes are possible. [2]

13. (a) Construct a rhombus whose diagonals are 6 cm and 8 cm. Write the construction steps and state two properties used.

OR

13. (b) Construct a parallelogram whose diagonals are 7 cm and 5 cm and intersect at 120° . Write the construction steps.

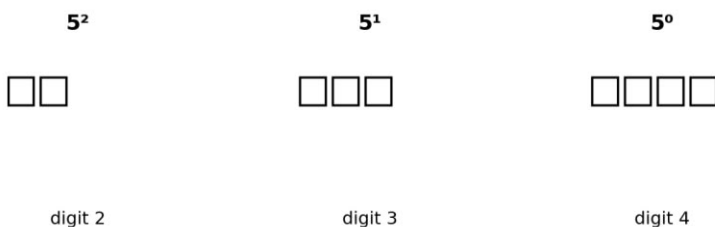
SECTION – E

Questions 14 to 16: Source-Based / Case-Study - 4 marks each.

(3 × 4 = 12)

14. Number-System Museum

A museum displays a base-5 numeral using place-value cards. The digits shown for 5^2 , 5^1 and 5^0 are 2, 3 and 4 respectively.



(i) Write the numeral in base-5 notation. [1]

(ii) Find its value in the Hindu decimal system. [1]

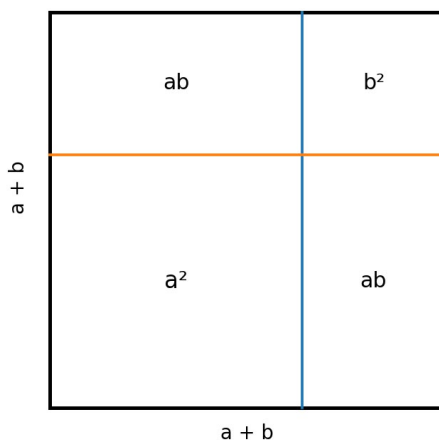
(iii) (a) If one more 5^2 card is added, what is the new decimal value? [2]

OR

(iii) (b) Write decimal 54 in base-5. [2]

15. Identity Tile Board

A square board is partitioned to show the algebraic identity $(a+b)^2$.



(i) Name the four regions represented in the diagram. [1]

(ii) Write the identity represented by the whole board. [1]

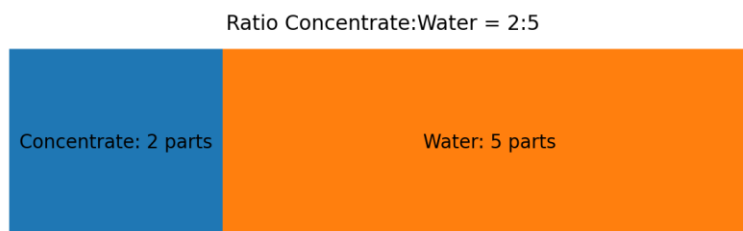
(iii) (a) Use it to find 52^2 . [2]

OR

(iii) (b) Use it to find 98^2 . [2]

16. Sports Drink Mix

A sports drink is prepared by mixing concentrate and water in the ratio 2:5.



- (i) How many total parts are there? [1]
(ii) If the drink is 21 L, how much concentrate is used? [1]
(iii) (a) Find the amount of water in 35 L of drink. [2]

OR

- (iii) (b) If 8 L concentrate is used, how much water is required? [2]