

Mathematics

Sample Question Paper – 5

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 number has an odd number of factors?

- (a) 18 (b) 20
(c) 25 (d) 30

1 (ii) The scientific notation of 450000 is:

- (a) 45×10^4 (b) 4.5×10^5
(c) 0.45×10^6 (d) both (b) and (c), but standard form is (b)

1 (iii) The Hindu number system is primarily a base:

- (a) 2 (b) 5
(c) 10 (d) 60

1 (iv) Diagonals of a rectangle are:

- (a) unequal
(b) equal and bisect each other
(c) perpendicular always
(d) parallel

1 (v) A multiple of 6 must be divisible by:

- (a) 2 and 3 (b) 2 and 5
(c) 3 and 5 (d) 4 and 6

1 (vi) $(a+3)(a-3)$ equals:

- (a) a^2-9 (b) a^2+9
(c) a^2-6a+9 (d) a^2+6a+9

1 (vii) If 9 pens cost ₹252, cost of 1 pen is:

- (a) ₹24
- (c) ₹28

- (b) ₹26
- (d) ₹30

1 (viii) Which is not a perfect cube?

- (a) 512
- (c) 1000

- (b) 729
- (d) 1200

1 (ix) $2^{-4} \times 2^6$ equals:

- (a) 2^2
- (c) 4^6

- (b) 2^{-10}
- (d) 2^{10}

1 (x) If a number is divisible by 9, any rearrangement of its digits is:

- (a) always divisible by 9
- (b) never divisible by 9
- (c) divisible by 2
- (d) prime

1 (xi) A quadrilateral with all sides equal is a:

- (a) rhombus
- (c) rectangle necessarily

- (b) trapezium
- (d) kite only

1 (xii) Equivalent ratio to 15:20 is:

- (a) 3:4
- (c) 5:4

- (b) 4:3
- (d) 15:4

SECTION – B

(Questions 2 to 7: 2 marks each)

(6 × 2 = 12)

2. Use successive odd numbers to show that 49 is a perfect square.

3. (a) Simplify: $(5^2)^3 \div 5^4$.

OR

3. (b) Write 8.06×10^7 as an ordinary number.

4. Give two advantages of a place-value system with zero over a non-positional numeral system.

5. In a rectangle, diagonals AC and BD intersect at O. If AC = 12 cm, find AO, OC and BD.

6. Determine whether 57,024 is divisible by 9 and by 3.

7. Divide 96 in the ratio 5:3.

SECTION – C

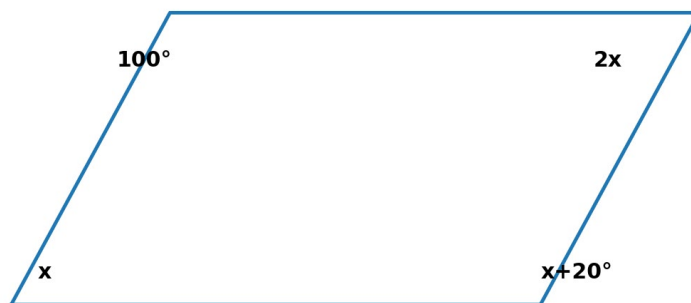
(Questions 8 to 10: 3 marks each)

(3 × 3 = 9)

8. Expand $(3x-2)(2x+5)$ using distributivity.

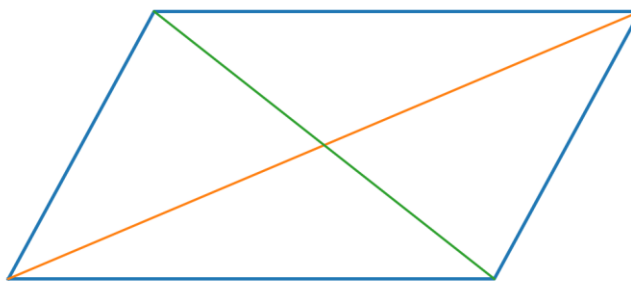
9. A photograph 12 cm by 8 cm is enlarged proportionally so its width becomes 18 cm. Find the new height.

10. (a) In the given quadrilateral, the angles are x , $x+20^\circ$, $2x$ and 100° . Find x and all angles.



OR

10. (b) In a parallelogram, diagonals bisect each other. If one diagonal is split into $(3x+1)$ cm and $(5x-7)$ cm, find x .



SECTION – D

(Questions 11 to 13: 5 marks each)

(3 × 5 = 15)

11. (a) Find $\sqrt{1936}$ by estimation and verification, using nearby perfect squares.

OR

11. (b) Find $\sqrt[3]{27000}$ by prime factorisation. Then find the cube of the result.

12. Explain why the sum of any two multiples of 8 is a multiple of 8, using algebra and a visual/array interpretation. Then test your statement with two examples.

13. (a) Construct a rectangle with sides 6 cm and 4 cm, draw both diagonals and verify their properties by measurement.

OR

13. (b) Construct a rhombus with side 5 cm and one angle 60° . Draw diagonals and state their properties.

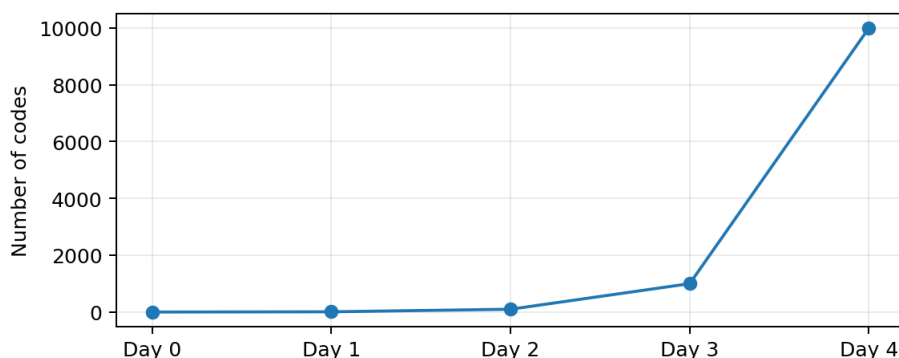
SECTION – E

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

(3 × 4 = 12)

14. Password Laboratory

A digital lock has 4 slots, each accepting digits 0–9, with repetition allowed.



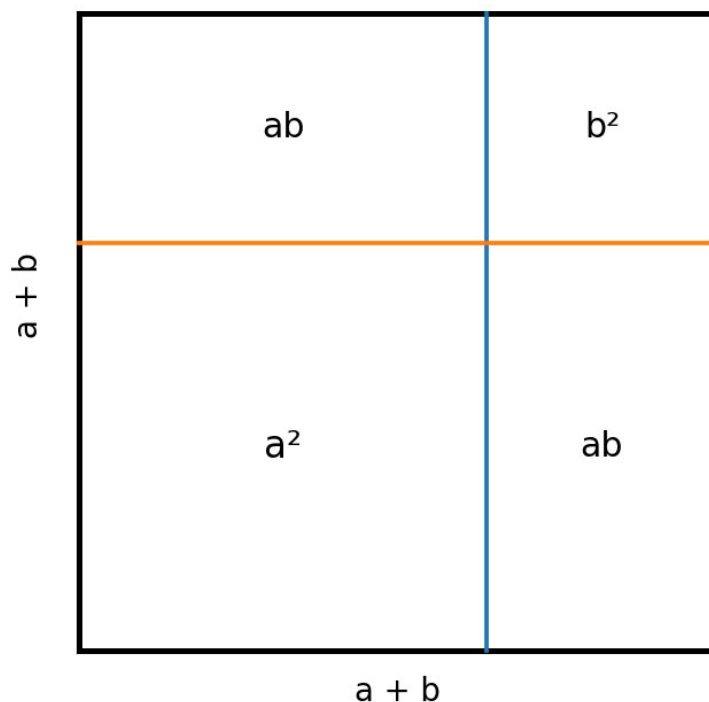
- (i) How many choices are there for one slot? [1]
- (ii) Write the total number of codes as a power of 10. [1]
- (iii) (a) Find the number of 6-slot codes. [2]

OR

- (iii) (b) How many times more 6-slot codes are there than 4-slot codes? [2]

15. Square Courtyard

A square courtyard has side $(x+3)$ m and is partitioned to visualise an identity.



- (i) Write its area as a square expression. [1]
- (ii) Expand the expression. [1]
- (iii) (a) Find the area for $x=7$. [2]

OR

- (iii) (b) If side is $(x-3)$ m instead, expand its area. [2]

16. Metal Alloy

Copper and nickel are mixed in ratio 3:2 to make a 25 kg alloy.

Ratio Copper:Nickel = 3:2



- (i) Find the total number of ratio parts. [1]
- (ii) Find the mass of copper. [1]
- (iii) (a) Find the mass of nickel. [2]

OR

- (iii) (b) For a 40 kg alloy in the same ratio, find both masses. [2]