

Mathematics

Sample Question Paper – 3

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 cannot be a perfect square?

- (a) 324 (b) 441
(c) 578 (d) 625

1 (ii) The value of $(3^2)^4$ is:

- (a) 3^6 (b) 3^8
(c) 9^4 (d) both (b) and (c)

1 (iii) A positional number system uses:

- (a) only names (b) symbol position to determine value
(c) no base (d) no zero

1 (iv) Opposite angles of a parallelogram are:

- (a) supplementary only (b) equal
(c) always 90° (d) unequal

1 (v) Which number is divisible by 11?

- (a) 3512 (b) 4730
(c) 5060 (d) 2728

1 (vi) The expansion of $(x-5)^2$ is:

- (a) x^2-25 (b) $x^2-10x+25$
(c) $x^2+10x+25$ (d) $x^2-5x+25$

1 (vii) If 6 kg rice costs ₹318, cost per kg is:

- | | |
|---------|---------|
| (a) ₹48 | (b) ₹50 |
| (c) ₹53 | (d) ₹56 |

1 (viii) Which is a perfect cube?

- | | |
|---------|---------|
| (a) 216 | (b) 250 |
| (c) 300 | (d) 450 |

1 (ix) 5^0 equals:

- | | |
|-------|---------------|
| (a) 0 | (b) 1 |
| (c) 5 | (d) undefined |

1 (x) If 6a25 is divisible by 9, a can be:

- | | |
|-------|-------|
| (a) 2 | (b) 4 |
| (c) 5 | (d) 7 |

1 (xi) A kite has:

- | | |
|----------------------------------|---------------------------------------|
| (a) four equal sides necessarily | (b) two pairs of equal adjacent sides |
| (c) all angles 90° | (d) two pairs parallel |

1 (xii) In the ratio 8:12, multiplying both terms by 3 gives:

- | | |
|-----------|-----------|
| (a) 24:36 | (b) 11:15 |
| (c) 8:36 | (d) 24:12 |

SECTION – B

(Questions 2 to 7: 2 marks each)

(6 × 2 = 12)

2. Given $39^2 = 1521$, find 40^2 using the pattern of consecutive squares.

3. (a) Simplify: $(2^{-3} \times 2^7) \div 2^2$.

OR

3. (b) Write 73,500,000 in scientific notation.

4. Explain why the Hindu number system is called a place-value system. Give one example.

5. The diagonals of a rectangle are 10 cm. What can you say about the length of the other diagonal and their point of intersection?

6. Find the smallest multiple of 9 greater than 5000.

7. A recipe uses flour:sugar = 4:1. How much sugar is needed with 2 kg flour?

SECTION – C

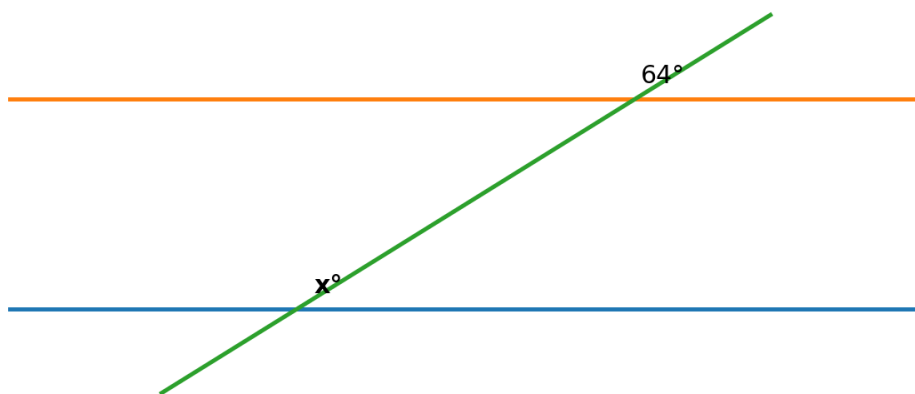
(Questions 8 to 10: 3 marks each)

(3 × 3 = 9)

8. Expand and simplify: $(2x+3)(x+5)$.

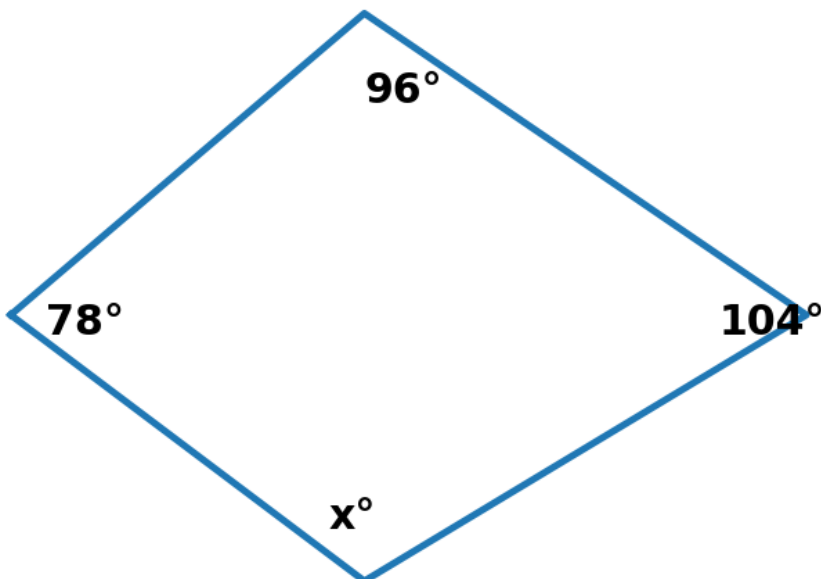
9. A map is enlarged so that every length is multiplied by 1.5. A road segment 8 cm long becomes how long? Explain why the shapes remain similar.

10. (a) The diagram shows two parallel lines cut by a transversal. Find x if the marked angle is 64° .



OR

10. (b) In the quadrilateral shown, three angles are 78° , 96° and 104° . Find the fourth angle and classify whether it could be a parallelogram.



SECTION – D

(Questions 11 to 13: 5 marks each)

(3 × 5 = 15)

11. (a) Determine whether 1156 is a perfect square using prime factorisation and find its square root.

OR

11. (b) Determine whether 3375 is a perfect cube using prime factorisation and find its cube root.

12. Explain the divisibility test for 11 using the number 83,556. Test the number and justify the result. Then create one 5-digit multiple of 11.

13. (a) Construct a rectangle whose diagonals are each 8 cm and intersect at 60° . Write steps and explain why the construction gives a rectangle.

OR

13. (b) Construct an isosceles trapezium with parallel sides 8 cm and 5 cm and equal non-parallel sides 4 cm. Write the construction steps.

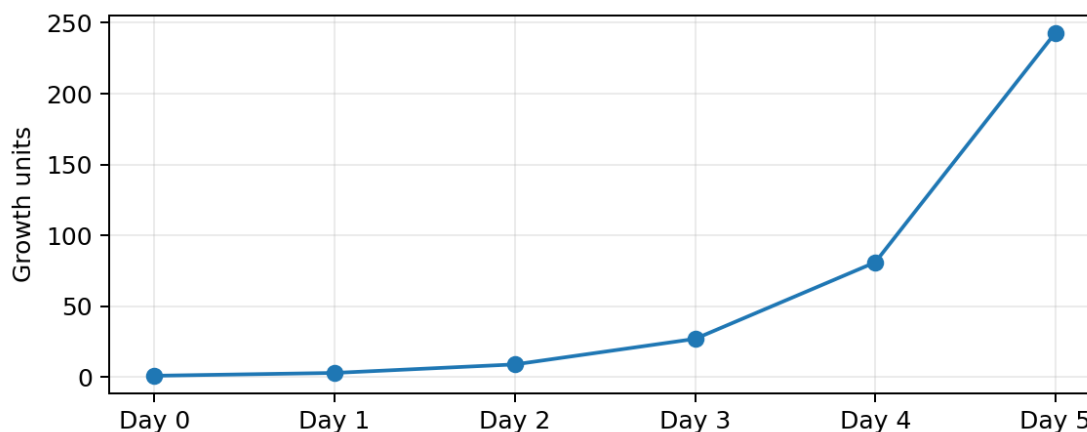
SECTION – E

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

(3 × 4 = 12)

14. Exponential Bacteria Model

A science club models a culture that triples every hour, starting with 1 unit.



(i) Write the amount after 4 hours in exponential form.

[1]

(ii) Find the numerical amount after 4 hours.

[1]

(iii) (a) How many times the initial amount is present after 6 hours?

[2]

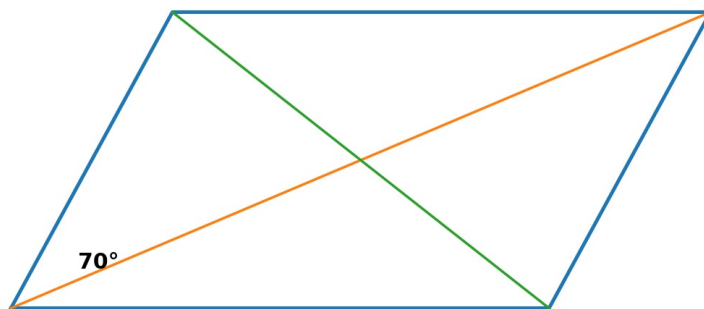
OR

(iii) (b) If growth doubled instead, write the amount after 8 hours.

[2]

15. Quadrilateral Park

A park is shaped like a parallelogram. One angle is 70° and one diagonal is drawn.



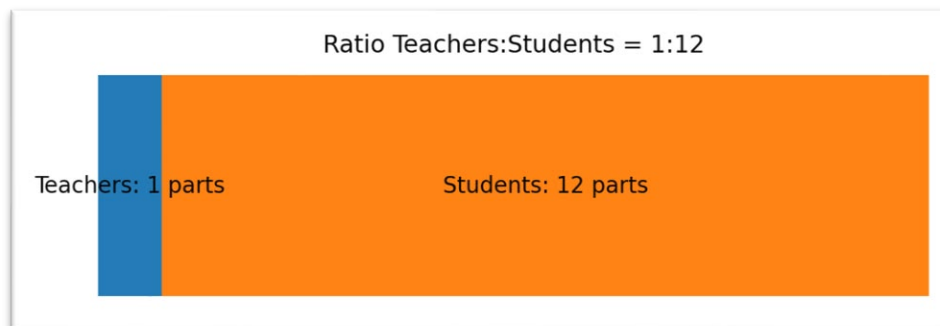
- (i) Find the opposite angle. [1]
- (ii) Find an adjacent angle. [1]
- (iii) (a) State two properties of the diagonals of a parallelogram. [2]

OR

- (iii) (b) If the park were a rhombus, what extra diagonal property would hold? [2]

16. School Bus Ratio

On a trip, teachers:students = 1:12 and there are 156 people in all.



- (i) How many ratio parts are there? [1]
- (ii) How many teachers are there? [1]
- (iii) (a) Find the number of students. [2]

OR

- (iii) (b) If the same ratio is used for 208 people, find teachers and students. [2]