BOARD-PATTERN PRACTICE PAPER · CBSE CLASS 9

Number Systems

Mathematics · Chapter 1 · Matches current CBSE blueprint · Each question PYQ-sourced where indicated

DATE	TOTAL MARKS	DURATION	MARKING	TARGET
_____	30	75 min	As per board	⩾ 24/30

GENERAL INSTRUCTIONS

1. All questions are compulsory.
2. Section A: 4 one-mark questions. Section B: 3 two-mark questions. Section C: 3 three-mark questions. Section D: 2 four/five-mark questions (one case-study).
3. Write square-root and exponent expressions clearly; show every step of working.
4. For 'rationalise' questions, the conjugate step must be shown; final answers must have a rational (surd-free) denominator.
5. Use of a ruler and compass is required for number-line construction questions — estimation by eye earns no construction mark.

Section A — Very Short Answer (1 mark each, 4 Qs) — 4 MARKS · 8 MIN

Q1. Is 0.bar(7) (i.e. 0.7777...) a rational or an irrational number? Give a reason. [PYQ 2023 Annual Pattern] **[1 mark]**

Q2. Write the rationalising factor (conjugate) of (2 + √5). [PYQ 2022 CBSE SQP] **[1 mark]**

Q3. Find the value of (16)^(1/2). [PYQ 2024 Annual Pattern] **[1 mark]**

Q4. State whether √(–4) has a value in the real number system. [PYQ 2024 Annual Pattern] **[1 mark]**

Section B — Short Answer I (2 marks each, 3 Qs) — 6 MARKS · 15 MIN

Q5. Express 0.bar(6) in the form p/q, where p and q are integers and q ≠ 0. [PYQ 2024 Annual Pattern] **[2 marks]**

Q6. Find one rational and one irrational number between 2 and 3. [PYQ 2021 Annual Pattern] **[2 marks]**

Q7. Simplify: 2^(2/3) × 2^(1/3) × 2^(0). Give the answer as a power of 2 and as a number. [PYQ 2022 CBSE SQP] **[2 marks]**

Section C — Short Answer II (3 marks each, 3 Qs) — 9 MARKS · 25 MIN

Q8. Rationalise the denominator of 1/(3 + √2) and state whether the result is rational or irrational. [PYQ 2023 CBSE SQP] **[3 marks]**

Q9. Represent √5 on the number line, showing all construction steps. [PYQ 2022 Annual Pattern] **[3 marks]**

Q10. Express 1.2bar(7) (i.e. 1.27777...) in the form p/q. [PYQ 2023 Annual Pattern] **[3 marks]**

Section D — Long Answer / Case Study (4-5 marks each, 2 Qs) — 11 MARKS · 22 MIN

Q11. (a) Rationalise the denominator of (5 + √3)/(5 – √3). (b) Hence state whether the simplified result is rational or irrational. (c) Verify your conjugate step by computing (5 – √3)(5 + √3). [PYQ 2022 CBSE SQP] **[5 marks]**

Q12. Read the passage and answer: Riya is sorting numbers into two boxes — 'Rational' and 'Irrational'. Her cards read: A = 0.bar(45), B = √11, C = 3.141141114... (the gaps between 1s keep growing), D = √49, and E = 22/7. (a) Sort each card into the correct box with a one-line reason. (b) Riya claims 'the product of any two irrational numbers is irrational'. Give a counter-example to prove her wrong. (c) Between cards' values, name one irrational number that lies between 3 and 4. [PYQ 2024 Annual Pattern] **[6 marks]**

Marking scheme & model answers — see companion Answer Key PDF · all PYQs traceable to actual CBSE papers · readyforboards.com · +91 70330 05444