Mathematics

Practice Test Paper 9

(Chapter 1: Real Numbers)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. The paper has four sections: A, B, C and D.
2. Section A: 5 × 1 = 5 marks; Section B: 4 × 2 = 8 marks; Section C: 3 × 3 = 9 marks; Section D: 1 × 3 = 3 marks.
3. Choose one correct option in Section A. Show the necessary steps and reasoning in Sections B, C and D.
4. Use prime factorisation where required. Use of calculators is not allowed.

SECTION A

(5 questions × 1 mark = 5 marks)

1. The least positive integer by which 360 must be multiplied to obtain a perfect cube is:

(A) 15 (B) 25
(C) 50 (D) 75

2. Two coprime positive integers have product 143. Their LCM is:

(A) 1 (B) 13
(C) 143 (D) 286

3. The reciprocal of a non-zero irrational number is:

(A) always irrational
(B) always rational
(C) always an integer
(D) always zero

4. If two positive integers have HCF 6 and LCM 72, their product is:

(A) 12 (B) 78
(C) 216 (D) 432

5. The square of $3\sqrt{2}$ equals:

(A) 6 (B) 12
(C) 18 (D) $9\sqrt{2}$

SECTION B

(4 questions × 2 marks = 8 marks)

6. Find the greatest length that measures each of 1008 cm, 1288 cm and 1470 cm an exact number of times.

7. Given that $\sqrt{5}$ is irrational, simplify $\sqrt{20} + \sqrt{45}$ and prove that the result is irrational.

8. Positive integers a and b are coprime. Prove that a and $a + b$ are also coprime.

9. A positive integer N satisfies HCF(N, 18) = 6 and LCM(N, 18) = 90. Find N and check both conditions.

SECTION C

(3 questions × 3 marks = 9 marks)

10. Let r and s be rational numbers with $s \neq 0$. Prove that $r + s\sqrt{3}$ is irrational, given that $\sqrt{3}$ is irrational. Explain why the condition $s \neq 0$ is necessary.

11. Find the smallest five-digit positive integer divisible by 84, 90 and 120.

12. Given that $\sqrt{3}$ is irrational, prove that $\sqrt{5} - \sqrt{3}$ is irrational.

SECTION D

(Application Based Question - 3 marks)

13. A number lock uses a positive integer N. Its HCF with 360 is 72, and its LCM with 360 is 1080.

(i) Find N.

(ii) Write the prime factorisation of N.

(iii) Find the least positive integer by which N must be multiplied to obtain a perfect square.