Mathematics

Practice Test Paper 3

(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. How many distinct prime factors does 5005 have?

(A) 2 (B) 3
(C) 4 (D) 5

2. Which pair has HCF 1 and LCM 84?

(A) (6, 14) (B) (4, 21)
(C) (7, 14) (D) (12, 14)

3. The number $\sqrt{45}$ is:

(A) a natural number
(B) an integer
(C) rational
(D) irrational

4. If $N = 2^a \times 3^2$ is divisible by 72 but not by 144, the non-negative integer a is:

(A) 2 (B) 3
(C) 4 (D) 5

5. Which sum of two irrational numbers is rational?

(A) $\sqrt{2} + \sqrt{2}$
(B) $\sqrt{3} + 2\sqrt{3}$
(C) $\sqrt{2} + (-\sqrt{2})$
(D) $\sqrt{5} + 3\sqrt{5}$

SECTION B

(4 questions × 2 marks = 8 marks)

6. Using prime factorisation, find the HCF and LCM of 306 and 657.

7. Given that $\sqrt{5}$ is irrational, prove that $7\sqrt{5}$ is irrational.

8. Find the greatest three-digit number exactly divisible by 18, 24 and 36.

9. A student writes $84 = 2 \times 3 \times 14$ and calls it a prime factorisation. Identify the error and write the correct prime factorisation.

SECTION C

(3 questions × 3 marks = 9 marks)

10. Prove that $\sqrt{2}$ is irrational.

11. Two positive integers have HCF 18 and product 5832. Find their LCM. If one integer is 162, find the other and verify the HCF.

12. Express $\frac{1}{2+\sqrt{3}}$ in the form $a + b\sqrt{3}$, where a and b are rational. Hence, prove it is irrational, given that $\sqrt{3}$ is irrational.

SECTION D

(Application Based Question - 3 marks)

13. Ribbons of lengths 126 cm, 168 cm and 210 cm are cut into pieces of the greatest possible equal length, with no ribbon left over.

(i) Find the length of each piece.

(ii) How many pieces come from the 168 cm ribbon?

(iii) How many pieces are obtained altogether?