# Mathematics

## Practice Test Paper 5

### (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 $2^3 \times 3^4 \times 5^3$ must be divided to obtain a perfect cube is:

(A) 2 (B) 3
(C) 5 (D) 9

**2.** The HCF of 525 and 3000 is:

(A) 25 (B) 50
(C) 75 (D) 150

**3.** The value of $(\sqrt{5} + 1)(\sqrt{5} - 1)$ is:

(A) 4 (B) 6
(C) $2\sqrt{5}$ (D) $\sqrt{5} - 1$

**4.** Two positive integers have HCF 15 and LCM 90. If one is 45, the other is:

(A) 15 (B) 20
(C) 30 (D) 60

**5.** Apart from the order of factors, every composite number has:

(A) only one prime factor
(B) a unique prime factorisation
(C) only distinct prime factors
(D) an even number of prime factors

## SECTION B

(4 questions × 2 marks = 8 marks)

**6.** Find the smallest positive integer divisible by every integer from 1 to 10.

**7.** Given that $\sqrt{5}$ is irrational, prove that $\frac{\sqrt{5}-1}{2}$ is irrational.

**8.** Give two distinct irrational numbers whose product is 4. Verify your example.

**9.** If $a = 2^3 \times 3^x$ and $b = 2^2 \times 3^2 \times 5$ have LCM 1080, find the non-negative integer x.

## SECTION C

(3 questions × 3 marks = 9 marks)

**10.** Given that $\sqrt{2}$ and $\sqrt{3}$ are irrational, prove that $\sqrt{2} - \sqrt{3}$ is irrational.

**11.** Timber pieces of lengths 42 m, 49 m and 63 m are to be cut into planks of equal maximum length without wastage. Find the length of each plank and the total number of planks.

**12.** The HCF and LCM of two positive integers are 24 and 864 respectively. One integer is 216. Find the other and verify both the HCF and the LCM by prime factorisation.

## SECTION D

(Application Based Question - 3 marks)

**13.** In a number game, the starting number is 1. Six cards are used, bearing the numbers 2, 2, 3, 5, 5 and 7. The current number is multiplied by each card number once.

(i) Find the final number.

(ii) Find the least positive integer that multiplies the final number into a perfect square.

(iii) What perfect square is obtained?