

# Mathematics

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(Chapter – 1) (Real Numbers) (Practice Test 1)  
(Class X)

Time: 1 hour 15 minutes

M. M: 25

## General Instructions:

- This question paper contains four sections: A, B, C and D. Each part is compulsory.
- Section A has 5 MCQ of one mark each.
- Section B has 3 questions of two marks each.
- Section C has 3 questions of three marks each.
- Section D has 2 questions of five marks each, attempt any 1 out of 2.
- There is no negative marking.

### [Section – A]

1. The exponent of 2 in the prime factorization of 144, is  
(A) 4 (B) 5 (C) 6 (D) 3
2. The L.C.M of two numbers is 120. Which of the following cannot be their H.C.F?  
(A) 600 (B) 500 (C) 400 (D) 200
3. If  $n = 2^3 \times 3^4 \times 5^4 \times 7$ , then the number of consecutive zeroes in  $n$ , where  $n$  is a natural number, is  
(A) 2 (B) 3 (C) 4 (D) 7
4. The sum of the exponents of the prime factors in the prime factorization of 196, is  
(A) 1 (B) 2 (C) 4 (D) 6
5. The number of decimal places after which the decimal expansion of the rational number  $\frac{23}{2^2 \times 5}$  will terminate, is  
(A) 1 (B) 2 (C) 3 (D) 4

### [Section – B]

6. State Euclid's division lemma.
7. Write 98 as product of its prime factors.
8. Write the condition to be satisfied by  $q$  so that a rational number  $p/q$  has a terminating decimal expansion.

### [Section – C]

9. If product of two numbers is 1080 and their HCF is 30, find the LCM.
10. What is the HCF of the smallest composite number and the smallest prime number?
11. A circular field has a circumference of 360 km. Three cyclists start together and can cycle 48, 60, 72 km a day, round the field. When will they meet again?

### [Section – D]

12. Prove that  $\sqrt{2} + \sqrt{3}$  is an irrational number.
13. Prove that  $\sqrt{5}$  is an irrational number.

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Hints and Answers

## Section - A

1. 4
2. 500
3. 3
4. 4
5. 2

## Section - B

6. Euclid's division lemma or Euclid algorithm states that given positive integers  $a$  &  $b$ , there exist unique integers  $q$  &  $r$  satisfying  $a = bq + r$ ,  $0 \leq r < b$ .
7.  $2 \times 7^2$
8. The prime factorization of  $q$  must be of the form  $2^m \times 5^n$ , where  $m, n$  are non-negative integers.

## Section - C

9. 36
10. 2
11. 30 days

