

# CHAPTER-1 | Real Numbers

## QUIZ PART-02

1. Every composite number can be expressed as a product of
- Integers
  - Primes
  - Rational numbers
  - Irrational numbers

*Explanation:* By the Fundamental Theorem of Arithmetic, every composite number can be written as a product of prime numbers.

2. The prime factorization of a composite number is:
- Random
  - Unique apart from order
  - Always repeated
  - Not possible

*Explanation:* The theorem says prime factorization is unique, except for the order of the prime factors

3. Why can no value of  $n$  make  $4^n$  end in zero?
- Because it is odd
  - Because it contains only factor 2 and no factor 5
  - Because it is always prime
  - Because it is negative

*Explanation:* A number ending in 0 must have 2 and 5 as factors, but  $4^n = (2)^{2n}$  has only factor 2.

4. HCF is found by taking the product of:
- Greatest powers of common prime factors
  - Smallest powers of common prime factors
  - All prime numbers
  - Different prime factors only

*Explanation:* HCF is obtained by multiplying the smallest powers of the common prime factors.

5. LCM is found by taking the product of:
- Smallest powers of common prime factors
  - Greatest powers of prime factors involved
  - Only common factors
  - Only prime numbers less than 10

*Explanation:* LCM is obtained by multiplying the greatest powers of all prime factors involved.

6. The HCF of 72 and 120 is:
- 8
  - 16
  - 24
  - 48

*Explanation:* Prime factorization gives  $72 = 2^3 \times 3^2$  and  $120 = 2^3 \times 3 \times 5$ , so  $HCF = 2^3 \times 3 = 24$ .

7. The LCM of 18 and 60 is:
- 120
  - 140
  - 160
  - 180

*Explanation:* Using prime factors,  $18 = 2 \times 3^2$  and  $60 = 2^2 \times 3 \times 5$ , so  $LCM = 2^2 \times 3^2 \times 5 = 180$ .

8. For two positive integers  $a$  and  $b$ ,  $HCF(a, b) \times LCM(a, b)$  equals:
- $a + b$
  - $a - b$
  - $a \times b$
  - $a \div b$

*Explanation:* The product of HCF and LCM of two positive integers is equal to the product of the numbers.

9. Fundamental Theorem of Arithmetic is also called:
- Algebra theorem
  - Ambiguous factorization theorem
  - Unique factorization theorem
  - Division theorem

*Explanation:* It is called the Unique Factorization Theorem because the prime factorization is unique.

10. The LCM and HCF of two numbers are 72 and 12. If one number is 24, the other number is:
- 12
  - 36
  - 72
  - 96

*Explanation:* Using  $HCF \times LCM = \text{product of the numbers}$ ,  $12 \times 72 = 24 \times \text{other}$ , so the other number is 36.