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(Affiliated to CBSE up to +2 Level)

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REAL NUMBERS



BASIC CONCEPTS & FORMULAE

- The Fundamental Theorem of Arithmetic:** Every composite number can be expressed (factorised) as a product of primes, and this factorisation is unique, apart from the order in which the prime factors occur.
- If p is a prime and p divides a^2 , then p divides a , where a is a positive integer.
- If x be any rational number whose decimal expansion terminates, then we can express x in the form $\frac{p}{q}$, where p and q are coprime, and the prime factorisation of q is of the form $2^n 5^m$, where n, m are non-negative integers.
- Let $x = \frac{p}{q}$ be a rational number, such that the prime factorisation of q is of the form $2^n 5^m$, where n, m are non-negative integers, then, x has a decimal expansion which terminates.
- Let $x = \frac{p}{q}$ be a rational number, such that the prime factorisation of q is not of the form $2^n 5^m$, where n, m are non-negative integers, then, x has a decimal expansion which is non-terminating repeating (recurring).
- For any two positive integers a and b , $\text{HCF}(a, b) \times \text{LCM}(a, b) = a \times b$.

MULTIPLE CHOICE QUESTIONS

Choose and write the correct option in the following questions.

- The LCM of smallest two digit composite number and smallest composite number is
(a) 12 (b) 4 (c) 20 (d) 44
- The total number of factors of a prime number is [CBSE Sample Paper 2020]
(a) 1 (b) 0 (c) 2 (d) 3
- The sum of exponents of prime factors in the prime factorisation of 196 is
(a) 3 (b) 4 (c) 5 (d) 2
- The HCF of 135 and 225 is [CBSE 2020(30/2/1)]
(a) 15 (b) 75 (c) 45 (d) 5
- The decimal representation of $\frac{37}{50}$ will
(a) terminate after 1 decimal place (b) terminate after 2 decimal places
(c) terminate after 3 decimal places (d) not terminate
- The largest number which divides 70 and 125 leaving remainders 5 and 8 respectively is
(a) 13 (b) 65 (c) 875 (d) 1750



7. The decimal representation of $\frac{15}{400}$ will
- (a) terminate after 1 decimal place. (b) terminate after 2 decimal places.
(c) terminate after 3 decimal places. (d) terminate after 4 decimal places.
8. If $6370 = 2^m \cdot 5^n \cdot 7^k \cdot 13^p$, then the value of $m + n + k + p$ is
- (a) 2 (b) 3 (c) 4 (d) 5
9. The least number that is divisible by all the numbers from 1 to 5 is
- (a) 30 (b) 20 (c) 60 (d) 120
10. Which of these rational number is a terminating decimal?
- (a) $\frac{7}{18}$ (b) $\frac{13}{21}$ (c) $\frac{8}{200}$ (d) $\frac{16}{225}$
11. The largest number which divides 615 and 963 leaving remainder 6 in each case is
- (a) 82 (b) 95 (c) 87 (d) 93
12. If 3 is the least prime factor of number a and 7 is the least prime factor of number b , then the least prime factor of $(a + b)$ is
- (a) 2 (b) 3 (c) 5 (d) 10
13. If $a = 2^3 \times 3$, $b = 2 \times 3 \times 5$, $c = 3^n \times 5$ and $\text{LCM}(a, b, c) = 2^3 \times 3^2 \times 5$, then n is equal to
- (a) 1 (b) 2 (c) 3 (d) 4
14. If p and q are prime numbers then the HCF of p^3q^2 and p^2q is
- (a) p^3q^2 (b) p^2q (c) p^2q^2 (d) pq
15. HCF of 96 and 404 is
- (a) 4 (b) 2 (c) 3 (d) 101
16. The pair of co-prime is
- (a) 32, 40 (b) 21, 28 (c) 18, 25 (d) 9, 27
17. The product of two numbers is 320 and their LCM is 80. The HCF of the numbers is
- (a) 8 (b) 4 (c) 16 (d) 10
18. The HCF of 8, 9 and 5 is
- (a) 8 (b) 25 (c) 9 (d) 1
19. 5 is the prime factor of
- (a) 78 (b) 240 (c) 1001 (d) 1547
20. Which of the following rational numbers will have a terminating decimal expansion?
- (a) $\frac{17}{8}$ (b) $\frac{7}{105}$ (c) $\frac{9}{14}$ (d) $\frac{13}{30}$
21. A teacher creates the question "Which of the following could be the sum of two rational numbers?". She now needs to create three incorrect choices and one correct answer. Which option shows the choices that the teacher should create? [CBSE Question Bank]
- (a) First choice: 125; Second choice: $36+42$; Third choice: 81; Correct Answer: 169
(b) First choice: 227; Second choice: $25+16$; Third choice: 64; Correct Answer: 5
(c) First choice: π ; Second choice: $20+16$; Third choice: $50 - 1$; Correct Answer: 49
(d) None of them

