### Number System

1. **What is the value of the digit 7 in the number 8734?**
   * A) 700
   * B) 70
   * C) 7000
   * D) 7

**Solution and Explanation:**

* + The value of the digit 7 in the number 8734 is in the hundreds place.
  + **Answer:** A) 700

1. **Which of the following is a prime number?**
   * A) 81
   * B) 91
   * C) 101
   * D) 111

**Solution and Explanation:**

* + A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself.
  + 101 is a prime number.
  + **Answer:** C) 101

1. **What is the sum of the first 20 positive integers?**
   * A) 190
   * B) 210
   * C) 220
   * D) 200

**Solution and Explanation:**

* + The sum of the first n positive integers is given by the formula n(n+1)2\frac{n(n+1)}{2}.
  + Substituting n=20n = 20, we get 20×212=210\frac{20 \times 21}{2} = 210.
  + **Answer:** B) 210

1. **What is the least common multiple (LCM) of 12 and 18?**
   * A) 36
   * B) 54
   * C) 72
   * D) 108

**Solution and Explanation:**

* + LCM of two numbers is the smallest number that is a multiple of both.
  + LCM of 12 and 18 is 36.
  + **Answer:** A) 36

1. **What is the highest common factor (HCF) of 48 and 60?**
   * A) 6
   * B) 12
   * C) 24
   * D) 36

**Solution and Explanation:**

* + HCF of two numbers is the largest number that divides both.
  + HCF of 48 and 60 is 12.
  + **Answer:** B) 12

1. **What is the largest number that divides both 420 and 660?**
   * + **40**
     + **60**
     + **80**
     + **120**

**Solution and Explanation:**

The GCD of 420 and 660 can be calculated by prime factorization:  
420=2x2×3×5×7420 = 2^2 \times 3 \times 5 \times 7420=2x2×3×5×7,  
660=2x2×3×5×11660 = 2^2 \times 3 \times 5 \times 11660=2x2×3×5×11.  
The GCD = 2x2×3×5=60 2^2 \times 3 \times 5 = 60  
**Correct answer**: b) 60

1. **What is the remainder when 75 is divided by 8?**
   * A) 2
   * B) 3
   * C) 4
   * D) 5

**Solution and Explanation:**

* + 75÷8=9 R 3
  + **Answer:** B) 3

1. **If the product of two numbers is 120 and their HCF is 6, what is their LCM?**
   * A) 20
   * B) 30
   * C) 40
   * D) 60

**Solution and Explanation:**

* + Product of two numbers = HCF × LCM
  + 120=6×LCM⇒LCM=20120 = 6 \times LCM \Rightarrow LCM = 20
  + **Answer:** A) 20

1. **What is the value of** (−3)^4**?**
   * A) 81
   * B) -81
   * C) 27
   * D) 61

**Solution and Explanation:**

* + (−3)4=(−3)×(−3)×(−3)×(−3)=81(-3)^4 = (-3) \times (-3) \times (-3) \times (-3) = 81
  + **Answer:** D) 81

1. **Which of the following numbers is an integer?**
   * A) 5.7
   * B) -3
   * C) 1/2
   * D) √2

**Solution and Explanation:**

* + An integer is a whole number that can be positive, negative, or zero.
  + **Answer:** B) -3

ASSIGNMENT:

**1. Which of the following is the smallest prime number?**  
a) 0  
b) 1  
c) 2  
d) 3

**2. What is the remainder when 345 is divided by 7?**  
a) 2  
b) 3  
c) 4  
d) 5

**3. If the product of two numbers is 225 and their HCF is 15, what is their LCM?**  
a) 15  
b) 45  
c) 75  
d) 225

**4. Which of the following is the binary representation of the decimal number 12?**  
a) 1010  
b) 1100  
c) 1011  
d) 1110

**5. What is the value of 2³ × 2⁴?**  
a) 2⁷  
b) 2⁶  
c) 2⁵  
d) 2⁸