PRACTICE WORKSHEET 3: FACTORS | CLASS 5 MATHEMATICS

Multiple Choice Questions (5)

1. Which of the following numbers is divisible by both 3 and 4?

    a. 24
    b. 36
    c. 40
    d. 45

2. Which of the following pairs has the HCF as 1?

    a. 8 and 12
    b. 14 and 21
    c. 9 and 10
    d. 18 and 27

3. A number ends in 0 and is divisible by 5. Which other number is it guaranteed to be divisible by?

    a. 2
    b. 3
    c. 4
    d. 6

4. Which of the following represents the correct steps to find the prime factorization of 120?

    a. Divide by 2 repeatedly, then by 3 and finally by 5
    b. Divide by 3, then 4, and then 6
    c. Divide by 5 first, then 2, then 3
    d. Use only odd numbers

5. The LCM of two numbers is 60, and their HCF is 12. If one number is 20, what is the other number?

    a. 15
    b. 30
    c. 12
    d. 24

Fill in the Blanks (5)

1. A number is divisible by _____ if its last two digits form a number divisible by 4.
2. The smallest prime number greater than 10 is _____.
3. The HCF of 28 and 42 is _____, and their LCM is _____.
4. The rule of divisibility for 11 involves finding the difference between the _____ of alternate digits.
5. The prime factorization of 96 is _____.

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True or False Questions (5)

1. The HCF of two prime numbers is always 1.
2. If two numbers have an HCF of 1, their LCM is equal to their product.
3. The number 100 is divisible by both 4 and 6.
4. A composite number can be written as the product of its prime factors in only one way.
5. $2^4 \times 3^2$ is the prime factorization of 108.

Direct Numeric (5)

1. Find the prime factors of 210.
2. Calculate the HCF of 28, 42, and 70 using prime factorization.
3. Find the number divisible by both 3 and 5 that is closest to 50.
4. Write 10^5 in expanded form and evaluate its value.
5. A number is divisible by both 12 and 15. What is the smallest such number greater than 50?

Word Problems (5)

1. A store owner has 48 packets of chips, 60 packets of biscuits, and 72 packets of chocolates. He wants to pack them into equal-sized boxes with no leftover packets. What is the maximum number of boxes he can use?
2. Two friends jog around a circular track. The first friend completes one lap in 18 minutes, and the second friend completes one lap in 24 minutes. How long will it take for both friends to meet at the starting point again?
3. A teacher wants to arrange 36 pencils, 54 erasers, and 72 sharpeners into kits with equal quantities of each item. What is the maximum number of kits she can make?
4. A number has the prime factorization $2^3 \times 3^2 \times 5^2$. Find the HCF of this number and another number $2^2 \times 3 \times 7^2$.
5. Write the prime factorization of 180 and explain how it is used to find both the HCF and LCM when paired with another number like 240.

Answer Key with Explanations

Multiple Choice Questions

1. a) 24 (24 is divisible by both 3 and 4 because it satisfies their LCM, 12.)
2. c) 9 and 10 (HCF of 9 and 10 is 1 as they share no common prime factors.)
3. a) 2 (Numbers ending in 0 are divisible by both 2 and 5.)
4. a) Divide by 2 repeatedly, then by 3 and finally by 5 (This ensures a complete prime factorization.)
5. b) 30 (Using the relationship HCF×LCM=Product of numbers, 12×60=20×x, x=30)

Fill in the Blanks

1. 4
2. 11
3. 14, 84
4. Sums
5. 3

True or False

1. True (Prime numbers have only two factors: 1 and itself.)
2. True (If HCF is 1, then the numbers are coprime, and LCM=product of the numbers.)
3. False (100 is divisible by 4 but not 6.)
4. True (The prime factorization of a composite number is unique.)
5. False ($2^4 \times 3^2 = 144$, not 108.)

Direct Numeric

1. $2 \times 3 \times 5 \times 7$
2. HCF = $2^2 = 4$
3. 45 (LCM of 3 and 5 is 15. Closest multiple of 15 near 50 is 45.)
4. $10 \times 10 \times 10 \times 10 \times 10 = 100,000$
5. 60 (LCM of 12 and 15 is 60, the smallest number greater than 50 divisible by both.)

Word Problems

1. 12 boxes (HCF of 48, 60, and 72 is 12.)
2. 72 minutes (LCM of 18 and 24 is 72.)
3. 18 kits (HCF of 36, 54, and 72 is 18.)
4. HCF=$2^2 \times 3 = 12$
5. Prime factorization of 180: $2^2 \times 3^2 \times 5^2$. For HCF and LCM, compare powers of each factor: HCF=$2^2 \times 3^1 = 12$, LCM=$2^3 \times 3^2 \times 5 = 360$.