EDUFEST JUNIOR BAVDHAN, PUNE. 7709585248

Class 6 Mathematics

Chapter 5 – Prime Time Complete Notes + Practice Worksheet

PART 1: REVISION NOTES

1. Common Factors

- **Definition:** Numbers that divide **two or more numbers completely without leaving a remainder.**
- **How to Find Them:** List all factors of each number, then identify the ones that appear in both lists.
- **Example:** For 12 and 18:
  - Factors of 12: 1, 2, 3, 4, 6, 12
  - Factors of 18: 1, 2, 3, 6, 9, 18
  - **Common Factors:** 1, 2, 3, 6
- **Key Tip: 1 is always a common factor of any two numbers.**

2. Common Multiples

- **Definition:** Multiples shared by two or more numbers.
- **Example:** For 4 and 6:
  - Multiples of 4: 4, 8, 12, 16, 20, 24, 28...
  - Multiples of 6: 6, 12, 18, 24, 30...
  - **Common Multiples:** 12, 24, 36, 48... (these go on forever!)
- **LCM: The smallest common multiple is the Least Common Multiple.**

EduFest Junior

3. Perfect Numbers

- **Definition:** A number that equals the sum of all its proper divisors (all factors except itself).
- **Example 6:** Proper divisors are 1, 2, 3. Sum: $1 + 2 + 3 = 6$. (Perfect!)
- **Example 28:** Proper divisors are 1, 2, 4, 7, 14. Sum: 1 + 2 + 4 + 7 + 14 = 28 (Perfect!)
- **Note:** These are rare. The first four are 6, 28, 496, and 8128.

4. Prime & Composite Numbers

- **Prime:** Greater than 1 with exactly two factors (1 and itself).
  - 2 is the only even prime.

  - There are 25 primes between 1 and 100.
- **Composite:** Greater than 1 with more than two factors.
  - 4 is the smallest composite number.
- **Important:** 1 is **neither** prime nor composite.

5. Co-prime Numbers

- **Definition:** Two numbers whose Greatest Common Factor (GCF) is 1.
- **Points:** They don't have to be prime themselves. Consecutive numbers are always co-prime (e.g., 8 and 9).

6. Prime Factorisation

- **Methods:** Factor Tree or Division Method.

7. Divisibility Tests

Divisor	Rule
2	Last digit is even (0, 2, 4, 6, 8)
3	Sum of digits is divisible by 3
4	Last two digits are divisible by 4
5	Last digit is 0 or 5
6	Divisible by both 2 and 3
9	Sum of digits is divisible by 9
10	Last digit is 0

EduFest Junior

PART 2: PRACTICE WORKSHEET

Chapter 5 – Prime Time | 50 Questions

Section A: Multiple Choice Questions (1 Mark Each)

1. Which of the following is a prime number?

   (a) 15 (b) 21 (c) 23 (d) 27

2. Which is the only even prime number?

   (a) 4 (b) 6 (c) 2 (d) 8

3. How many prime numbers are there between 1 and 50?

   (a) 12 (b) 13 (c) 14 (d) 15

4. Which of the following pairs are co-prime?

   (a) (4, 8) (b) (9, 15) (c) (8, 15) (d) (6, 12)

5. What is the HCF of 12 and 18?

   (a) 2 (b) 3 (c) 6 (d) 9

6. What is the LCM of 4 and 5?

   (a) 10 (b) 15 (c) 20 (d) 40

7. Which number is NEITHER prime NOR composite?

   (a) 2 (b) 1 (c) 4 (d) 0

8. A perfect number is one where the sum of its proper divisors equals:

   (a) Double the number (b) Half the number (c) The number itself (d) 1

9. Which of the following is NOT a composite number?

   (a) 9 (b) 15 (c) 17 (d) 21

10. The LCM of two co-prime numbers is:

    (a) Their sum (b) Their difference (c) Their product (d) 1

11. What is the smallest prime number?

    (a) 0 (b) 1 (c) 2 (d) 3

12. Which number has the most factors from this list: 12, 15, 16, 18?

    (a) 12 (b) 15 (c) 16 (d) 18

13. A number is divisible by 6 if it is divisible by:

    (a) 2 only (b) 3 only (c) Both 2 and 3 (d) Both 2 and 5

Section B: Fill in the Blanks (1 Mark Each)

16. The sum of proper divisors of 28 is _____, so 28 is a _____ number.

17. The HCF of 15 and 25 is _____.

18. The LCM of 6 and 9 is _____.

19. The prime factorisation of 72 is _____.

20. Two numbers are co-prime if their HCF is .

21. The Sieve of _____ is used to find all prime numbers up to a limit.

22. is the smallest composite number.

23. All prime numbers greater than 2 are _____.

24. The common factors of 24 and 36 are _____.

25. LCM × HCF = _____ of the two numbers.

Section C: True or False (1 Mark Each)

26. Every composite number can be expressed as a product of prime factors.

27. 1 is a prime number.

28. The LCM of two numbers is always greater than or equal to the larger number.

29. Co-prime numbers must both be prime numbers.

30. 6 is a perfect number.

31. A number divisible by 9 is always divisible by 3.

32. The HCF of two prime numbers is always 1.

33. There are 10 prime numbers between 1 and 30.

Section D: Short Answer Questions (2 Marks Each)

34. Find all common factors of 16 and 24.

35. Write the prime factorisation of 48 using a factor tree.

36. Find the HCF of 36 and 60 using prime factorisation.

37. Find the LCM of 8 and 12 using prime factorisation.

38. Check whether 7 and 15 are co-prime. Show your working.

39. List all prime numbers between 40 and 60.

40. Is 496 a perfect number? (Hint: its proper divisors are 1, 2, 4, 8, 16, 31, 62, 124, 248).

41. Using divisibility rules, check whether 4536 is divisible by 2, 3, 4, 6, and 9.

42. Find the first three common multiples of 5 and 7.

43. Write any three pairs of co-prime numbers where neither number is prime.

Section E: Long Answer / Problem Solving (3 Marks Each)

44. Find the HCF and LCM of 24, 36, and 48.

45. A school has 60 boys and 84 girls. The principal wants to divide them into equal groups with no student left over. What is the maximum group size? How many groups of boys and girls will there be?

46. Two bells ring at intervals of 12 minutes and 18 minutes respectively. They ring together at 8:00 AM. At what time will they next ring together?

47. A gardener has 48 rose plants and 36 marigold plants. He wants to plant them in rows so each row has the same number of plants and only one type of plant. What is the maximum number of plants per row? How many rows of each type will there be?

48. Using the Sieve of Eratosthenes, list all prime numbers from 1 to 50 and count them.

49. Seema says: "If a number is divisible by both 4 and 6, it must be divisible by 24." Is she correct? Give a counter-example or proof.

50. Find two pairs of numbers whose HCF is 5 and LCM is 60. Show all working.

EduFest Junior