

Chapter: Factors and Multiples

Homework 2: Prime, Composite, Co-prime & Properties of Zero

Nalanda Academy, Wardha

Key Concepts to Remember

1. Prime number: Natural number > 1 with exactly two positive divisors — 1 and itself.
 2. Composite number: Natural number > 1 with more than two positive divisors.
 3. 1 is neither prime nor composite.
 4. 0 is neither prime nor composite.
 5. Co-prime numbers: Two numbers are co-prime if their HCF (GCD) is 1.
 6. Properties of zero: $0 \times a = 0$, division by zero is undefined, 0 is even, etc.
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1. Is 17 a prime number? Give reason.
2. Is 21 a composite number? Give reason.
3. Is 1 considered a prime number? Yes/No + explain.
4. Is 2 the only even prime number? Yes/No + explain.
5. Is 47 a prime number? Check and explain.
6. Is 51 a composite number? Show why.
7. Is 97 a prime number?
8. Is 100 a prime number? Why not?
9. Is 29 a prime number?
10. Is 35 a composite number?
11. Is 59 a prime number?
12. Is 121 a composite number? (Hint: check square)

13. Is 83 a prime number?
14. Is 1 a composite number? Yes/No + reason.
15. Is 2 a prime number? Yes/No + reason.
16. List the first six prime numbers.
17. List all prime numbers between 10 and 30.
18. List all composite numbers between 20 and 40.
19. Is 199 a prime number?
20. Is 289 a composite number? (Hint: 17×17)
21. What is the smallest prime number?
22. What is the smallest composite number?
23. Is 0 a prime number? Yes/No + explain.
24. Is 0 a composite number? Yes/No + explain.
25. Write any three pairs of twin primes (difference of 2).
26. How many positive factors does any prime number have?
27. How many positive factors does 36 have?
28. Does 23 have exactly two positive factors? Yes/No
29. Does 48 have more than six positive factors? Yes/No
30. How many positive factors does 1 have?
31. Is 64 a prime or composite number? Give reason.
32. Is 73 a prime or composite number? Explain.
33. Write the prime factorization of 84.
34. Write the prime factorization of 100.
35. Write the prime factorization of 72.
36. Is 125 a prime or composite number? (Hint: powers of 5)

37. How many distinct prime factors does 210 have?
38. Find the total number of factors of 60.
39. Find the total number of factors of 96.
40. Is 101 a prime number?
41. Is 119 a composite number? (Hint: 7×17)
42. Is 131 a prime number?
43. List all prime numbers less than 50.
44. How many prime numbers are there less than 20?
45. Does 1 have any prime factors? Yes/No
46. Does every composite number have at least three factors? Yes/No
47. Is 9 a prime or composite number? Explain.
48. Is 4 a prime or composite number? Explain.
49. Write the smallest composite number that is divisible by 2, 3 and 5.
50. Is 289 a prime number? Yes/No (explain)
51. Are 8 and 15 co-prime numbers? Yes/No + reason.
52. Are 9 and 25 co-prime? Yes/No + reason.
53. Are 14 and 21 co-prime? Yes/No
54. Are 17 and 23 co-prime? Yes/No
55. Are 12 and 35 co-prime? Yes/No
56. Are 1 and any natural number co-prime? Yes/No
57. Are 0 and 7 co-prime? Yes/No + careful reasoning.
58. Are 4 and 9 co-prime? Yes/No
59. Are 15 and 28 co-prime? Yes/No
60. Are 33 and 56 co-prime? Yes/No

61. Are 2 and 3 co-prime? Yes/No
62. Are 6 and 35 co-prime? Yes/No
63. Are 25 and 49 co-prime? Yes/No
64. Are 16 and 81 co-prime? Yes/No
65. Are 20 and 21 co-prime? Yes/No
66. Write any four pairs of co-prime numbers.
67. Are any two consecutive natural numbers always co-prime? Yes/No + example.
68. Are 45 and 52 co-prime? Yes/No
69. Are 63 and 64 co-prime? Yes/No
70. Are 105 and 128 co-prime? Yes/No
71. If two numbers are co-prime, then their HCF is always 1. True/False
72. If HCF of two numbers is 1, then they are co-prime. True/False
73. Are 1 and 0 co-prime? Yes/No + reason.
74. Are 7 and 1 co-prime? Yes/No
75. Are 11 and 13 co-prime? Yes/No
76. Is 0 an even number? Yes/No + reason.
77. Is 0 a natural number? Yes/No
78. Is 0 a whole number? Yes/No
79. Is 0 a prime number? Yes/No + explain.
80. Is 0 a composite number? Yes/No + explain.
81. What is the value of 0×56 ?
82. What is $84 \div 0$? (defined or undefined?)
83. Does 0 have a finite number of factors or infinite?
84. Is 0 divisible by every non-zero integer? Yes/No

85. Is every non-zero integer divisible by 0? Yes/No
86. What is the smallest whole number?
87. Is 0 a positive integer, negative integer, or neither?
88. Is -0 different from 0? Yes/No
89. Is 0 a multiple of every integer? Yes/No
90. Give one real-life example where multiplying by 0 gives zero.
91. In addition, 0 is called the _____ identity.
92. In multiplication, 0 is called the _____ element.
93. Is 0 a factor of 0? Yes/No
94. Is 0 a factor of 36? Yes/No
95. Is 36 a factor of 0? Yes/No
96. Classify 0 as: prime / composite / neither
97. Classify 1 as: prime / composite / neither
98. Classify 4 as: prime / composite / neither
99. Classify 97 as: prime / composite / neither
100. Classify 105 as: prime / composite / neither