Work Sheet

on

Number System

Aptitude Training Course

BOARD INFINITY

Work-sheet on Number Properties

1.   A number is to be multiplied by the fraction 4/5. But Samir, by mistake, multiplied it by 5/4 and obtained the number 81 more than the correct one. What was the original number?

    (a)   200   (b) 120   (c) 180   (d) 240

2.   Which of the following numbers is divisible by 3x4?

    (a) 946   (b) 947   (c) 948   (d) 949

3.   Every member of housing society contributed as much amount as there are number of members in the society. The president added Rs.150 extra from his side to make the total of Rs.2650. How many members are there in the housing society?

    (a) 25   (b) 50   (c) 60   (d) 35

4.   If the sum of two numbers is 20 and their HCF and LCM are 1 and 91 respectively, then the square of one of the numbers is

    (a) 16   (b) 25   (c) 36   (d) 49

5.   Find the number which is nearest to 4207 and is exactly divisible by 23?

    (a) 4786   (b) 4205   (c) 4209   (d) 4228

6.   Sameer plants 7225 plants, so that there are as many rows as there are trees in a row. How many trees are there in a row?

    (a) 75   (b) 95   (c) 85   (d) 65

7.   Express the fraction 26/17 as a number up to 3 decimal points.

    (a) 1.429   (b) 1.535   (c) 1.321   (d) 1.529

8.   The largest measuring cylinder that can accurately fill 3 tanks of capacity 98, 182 and 266 litres each, is of capacity

(a) 2 litres   (b) 7 litres   (c) 14 litres   (d) 98 litres

9.   In how many ways can a number 6084 be written as a product of two different factors?

      (a) 27   (b) 26   (c) 13   (d) 14

10.   What are the largest 4-digit and the smallest 3-digit numbers divisible by 6, 15, 21 and 24?

      (a) 9235, 420   (b) 9980, 840   (c) 9240, 840   (d) 9999, 999

11.   The number 567xy is completely divisible by 30. The possible of x and y can be

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

12.   What is the relationship between the fractions 14/15 and 37/40?

      (a) 14/15 = 37/40   (b) 14/15 > 37/40   (c) 14/15 < 37/40   (d) Cannot be determined

13.   The value of $(1/512)^{1/9}$ is

      (a) ½   (b) 1/3   (c) ¼   (d) 1/6

14.   Which number should be added to 113257 so that it can be divisible by 9?

      (a) 4   (b) 6   (c) 8   (d) 10

15.   What is the unit digit in 27^{20}?

      (a) 1   (b) 5   (c) 12   (d) 20

16.   Sudha purchased 3 kg potato from market. She used 1/3 of it in cooking baked potatoes and ½ of remaining in mixed vegetables. What quantity of potatoes is she left with?

      (a) 1.5 kg   (b) 2 kg   (c) 1 kg   (d) 2.5 kg

17.   What is the square root of 576/9?

      (a) 4   (b) 8   (c) 12   (d) 16

18. HCF of two numbers is 11 and their LCM is 693. If one number is 77, find the other number.

    (a) 7   (b) 9   (c) 63   (d) 99

19. Sara has 400 marbles. If she gives (1/5) th of her marbles to Sam and Sam gives (3/4) th of his marbles to David, then how many marbles does Sam have left?

    (a) 80   (b) 20   (c) 60   (d) 200

20. The reciprocal of the HCF and LCM of two numbers are 1/12 and 1/311 respectively. If one of the numbers is 24, find the other number.

    (a) 126   (b) 136   (c) 146   (d) 155.5

21. Out of every 100 people in police department, 10 are women. Out of every 100 people in military forces, 3 are women. In a batch of 180 police personnel and 200 army personnel, how many of them would be women?

    (a) 24   (b) 30   (c) 18   (d) 6

22. If 1= (3/4) (1+ (y/x) then

    (a) x=3y   (b) x=y/3   (c) x=(2/3)y   (d) None

23. Three wheels make 36, 24, 60 rev/min. Each has a black mark on it. It is aligned at the start of the qn. When does it align again for the first time?

    (a) 14 sec   (b) 6 min   (c) 360 min   (d) 5 sec

24. What is the unit's digit in expansion of 4^51?

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

25. If in a 2 digit no the unit's place is halved and tens place is doubled, then the difference between the numbers is 37. If the digit in unit's place is 2 more than ten's place, then find the number.

    (a)   24   (b)   46   (c)   42   (d)   None

26. Find approximate value of 59.987/0.2102+1.187*18.02

(a)   52   (b)   16   (c)   86   (d)   none

27. A company rented a machine for Rs.700/- a month. Five years later the treasurer calculated that if the company had purchased the machine and paid Rs.100/- monthly maintenance charge, the company would have saved Rs.2000/-. What was the purchase price of the machine?

(a)   Rs.24000   (b)   Rs.34000   (c)   Rs.36000   (d)   Rs.40000

28. There are 6561 balls out of them 1 is heavy. Find the min. no. of times the balls have to be weighed for finding out the heavy ball.

(a)   6   (b)   7   (c)   8   (d)   9

29. What is the unit's digit in expansion of 2^{51}?

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

30. Find approx. value of 39.987/0.8102+1.987*18.02

(a)   72   (b)   56   (c)   86   (d)   44

31. Which one of the following fractions is arranged in ascending order?

(a)   9/11,7/9,11/13,13/14   (b) 7/8,9/11,11/13,13/14   (c) 9/11,11/13,7/8,13/14   (d) None

32. A number is divisible by both 3 and 5, but when it is divided by 8 it gives a remainder 3. Find the number.

(a)   45   (b)   60   (c)   75   (d)   90

33.   200 Pepsi bottles are stacked in such a way that there are 20 bottles in the bottom, 19 in the next row, 18 in the row next and so on. In how many rows will 200 Pepsi bottles be placed?

(a)   25 rows   (b)   16 rows   (c)   10 rows   (d)   5 rows

34.   My mother gave me money to buy stamps of price 2paisa, 7 paisa,15 paisa, 10paisa and 20 paisa. I had to buy 5 each of three types and 6 each of the other 2 types. But on my way to the post office i forgot how many of stamps of each type were to be brought. My mother had given me rupees 3. So i had no problem in finding out the exact amount of each one. Can you tell me which stamps were 5 in number?

(a)   5 stamps each of 2paisa, 7 paisa, 15 paisa

(b)   5 stamps each of 2paisa, 7 paisa, 20 paisa

(c)   5 stamps each of 5paisa, 7 paisa, 20 paisa

(d)   5 stamps each of 5paisa, 20 paisa, 15 paisa

35. $10^{10} / (10^4)(10^2)$

(a) 10^4 (b) 10^6 (c) 10^2 (d)   None of these

36.   A man walked 1/4,3 1/4,7 1/4,9 1/4 and other man walked 2/4,2 1/4, 2 2/3,3 1/4 kms. Who walked more and by how much?

(a)   Person A walked 10 km more than person B

(b)   Person A walked 9 2/3 km more than person B

(c)   Person A walked 10 1/3 km more than person B

(d)   Person A walked 11 1/3 km more than person B

37. $1/(10^{18}) - 1/(10^{20}) = ?$

(a) $1/10^2$ (b) $99/10^{18}$ (c) $99/10^{20}$ (d) $101/10^{20}$

38. $0 < x < 1$: Which is greater? $(1/(x^2), 1/x, x, x^2)$

(a) x^2 (b) x (c) $1/x$ (d) $1/x^2$

39. $c = a/b$; $a-1 = c$ What is the relation between a&b?

(a) $a = 1/b + 1$ (b) $a = 1/b - 1$ (c) $a = 1-b$ (d) $a = b/(b-1)$

40.   If $(NM)^2 = RRM$, where N, M & R are distinct digits, Then possible values for R are

(a)   1   (b)   2   (c)   3   (d)   None of these

41.   If the product of the digits of a two-digit number is 18, find the number.

(a)   92   (b)   62   (c)   36   (d)   More than one of the above

42.   At 6'o clock ticks 6 times. The time difference between first and last ticks was 30sec. What is the time difference between first and last ticks at 12'o clock?

(a)   54 sec   (b)   60 sec   (c)   66 sec   (d)   360 sec

43.   Three friends divided some bullets equally. After all of them shot 4 bullets the total number of remaining bullets is equal to that of has after division. Find the original number divided.

(a)   18   (b)   24   (c)   12   (d)   16

44.   There are 3 societies a, b, c. a lent tractor to b and c as many as they had. After some time, b gave as many tractors to a and c as many as they have. After sometime c did the

same thing. the end of this transaction each one of them had 24. Find the tractors each initially had.

(a)   a had 35 b had 14 c had 21   (b)   a had 39 b had 21 c had 12

(c)   a had 14 b had 35 c had 45   (d)   a had 13 b had 26 c had 39

45.   There N stations on a railroad. After adding x stations 46 additional tickets have to be printed. Find N and X.

(a) x=4 and N=40   (b) x=46 and N=0   (c)   x=23 and N=23   (d)   x=2 and N=11

46.   If three eighth of a number is 1257, the one fourth of the number will be:
(a)   559   (b)   670   (c)   838   (d)   926

47.   (483*483*483+ 517*517*517) / (517*517 - 517*483 + 483*483) = ?
(a)   34   (b)   23.4568-   (c)   5436948   (d)   1000

48.   Find the least possible number which can be divided by 32, 36, 40

(a)   1440   (b)   720   (c)   360   (d)   2880

49.   Find the number of numbers lying between 1 and 1000 which are divisible by each of 6, 7 and 15.
(a) 200,400,600,800   (b) 210,420,630,840   (c) 230,460,690,920 (d) 220,440,660,880

50.   What is the least possible number which when divided by 24, 32 or 42 in each case it leaves the remainder 5?

(a)   672   (b)   677   (c)   341   (d)   336

51.   The least possible number of 3 digits when successively divided by 2,5,4,3 gives respective remainders of 1,1,3,1 is

(a)   372   (b)   275   (c)   273   (d)   193

52.   A number when divided successively by 6, 7, 8, it leaves the respective remainders of 3, 5 and 4, what will be the last remainder when such a least possible number is divided successively by 8, 7, 6?

(a)   2   (b)   3   (c)   4   (d)   5

53.   Find the smallest positive number which is exactly divisible by 1/3, 1/2, 3/7, 4/11.

(a)   10   (b)   11   (c)   12   (d)   14

54.   Find the total number of factors for 10800

(a)   40   (b)   50   (c)   60   (d)   70

55.   Find the number of factors of 12!

(a)   264   (b)   528   (c)   1056   (d)   2112

56.   Find the sum of factors of 270.

(a)   1440   (b)   180   (c)   720   (d)   240

57.   Find the product of factors of 7056
(a) 84^{48} (b) 84^{44} (c) 84^{45} (d)   None of these

58.   Find the number of ways of expressing 180 as a product of two factors.

(a)   6   (b)   7   (c)   8   (d)   9

59.   Find the number of ways of expressing 576 as a product of two distinct factors.

(a)   7   (b)   8   (c)   10   (d)   11

60.   Find the number of zeros in 133!

(a)   32   (b)   31   (c)   30   (d)   34

61.   Find the highest power of 12 in 100!

(a)   48   (b)   49   (c)   50   (d)   51

62.   Number of zeros at the end of the following expression:
$(5!)^{5!} + (10!)^{10!} + (50!)^{50!} + (100!)^{100!}$

 (a)   120   (b)   1   (c)   100   (d)   Can't be determined

63.   Find the last digit of $222^{888} + 888^{222}$

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

64.   Find the last digit of $32^{32^{\wedge}32}$

(a)   4   (b)   5   (c)   6   (d)   7

65.   Find the last digit of the expression:
$1^2 + 2^2 + 3^2 + 4^2 + \ldots + 100^2$.

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

66.   Find the unit digit of $1^1 + 2^2 + 3^3 + \ldots + 10^{10}$

(a)   6   (b)   7   (c)   8   (d)   9

67.   Find the unit digit of the expression:
$888^{888!} + 222^{222!} + 333^{333!} + 777^{777!}$.

(a)   3   (b)   4   (c)   5   (d)   6

68.   The last digit of the following expression is:
 $(1!)^1 + (2!)^2 + (3!)^3 + \ldots + (10!)^{10}$.

(a)   6   (b)   7   (c)   8   (d)   9

69.   What is the remainder of 1421 * 1423 * 1425 when divided by 12?

(a)   1   (b)   2   (c)   3   (d)   4

70.   Find the reminder when $1! + 2! + 3! + \ldots\ldots 99! + 100!$ is divided by the product of first 7 natural numbers

(a)   0   (b)   1   (c)   873   (d)   Can't be determined

71.   What is the remainder when $444^{444^{444}}$ is divided by 7 ?

(a)   1   (b)   2   (c)   3   (d)   None of these

72.   What is the remainder when 334^{334} is divided by 7?

(a)   1   (b)   2   (c)   3   (d)   4

73.   If $3x/(2) - (2(x-3))/3 = -4$, then x =?
(a) -6 1/5   (b) 7 1/5   (c) 6 1/5   (d) -7 1/5

74.   Find the value of $9.5 \times 10^2 \times 1.2 \times 10^{-5}$
(a) 0.0223   (b) 0.0114   (c) 0.0215   (d) 0.0326

75.   Find X if the equation $x3 + 7x + 2 = 0$ and x < 0
(a) x $\geq$ - 0.30   (b) x $\leq$- 3.02   (c) x $\geq$0.30   (d) x $\leq$- 4.32

76.   Find the sum of the following Arithmetic series.
1 + 3 1/2 + 6 + ……. + 101
(a) 3091   (b) 2081   (c) 2091   (d) 3081

77. Write down the first 4 terms of the geometric progression whose first term is -5 and the common ratio is ± 2.

(a) -5, -10, -20, -40   (b) 5, 10, 20, 40   (c) -5, 10, 20, 40   (d) 5, -10, -20, 40

78. Find the least number of boys in a school, if it is possible to divide the school into classes of 25 or 30 or 35 and have no boys left in each case.

(a) 1050   (b) 950   (c) 1000   (d) 1100

79. The value of y in $(y + 1)/2 + 3 = 3(y + 4)$ is

(a) - 4 2/5   (b) -3 2/5   (c) -5 4/5   (d) -2 3/5

80. Find the value of $16^{1/4} \times 125^{1/3} \times 27^{-1/3}$

(a) 5 1/3   (b) 4 1/3   (c) 2 3/4   (d) 3 1/3

81. Find x in the equation

$3x^2 - 5x - 7 = 0$

(a) 2.57 or -0.91   (b) 5.27 or 0.91   (c) 3.67 or -1.91   (d) 4.27 or 1.91

82. Find the number of terms and the sum of the following arithmetic series.

$10 + 9 + 8 + \ldots 18 - 19 - 20$

(a) 31, -155   (b) 32, 155   (c) 33, 156   (d) 33, -156

83. Find the sum of the numbers divisible by 3 which lie between 1 and 100.

(a) 1753   (b) 1683   (c) 1475   (d) 1673

84. Write down the first 4 terms of the geometric progression whose first term is 48 and common ratio is 1/2.

(a) 48, 58, 68, 78   (b) 48, 50, 58, 60   (c) 48, 38, 28, 18   (d) 48, 24, 12, 6

85. Find the least number which is divisible by all the numbers 1, 2, 3, 4, 5, …… up to 12.

(a) 28820   (b) 26620   (c) 27720   (d) 27620

86. The value of x in $\frac{(5x-3)}{8} + 1 = \frac{(4x-3)}{5}$ is

(a) 7   (b) 9   (c) 9   (d) 6

87. An electricity metre reading changes from 48446 to 53700. Calculate the cost if the first 72 units cost Rs. 3 each and the remainder Rs. 3.90 each.

(a) Rs. 21425.80   (b) Rs. 20209.80   (c) Rs. 20428.00   (d) Rs. 20425.80

88. Find the value of $32^{\frac{3}{5}} \times 25^{\frac{1}{2}} \times 64^{\frac{-1}{3}}$

(a) 9   (b) 15   (c) 10   (d) 20

89. Find the equation whose roots are 2/3 and – 3/4

(a) $12x^2 + x\text{-}6 = 0$ (b) $6x^2 + x\text{ -}12 = 0$ (c) $3x^2 + x\text{-}12 = 0$ (d) $3x^2 - x + 6 = 0$

90. The first term of an A.P. is 3. Find the common difference if the sum of the first 8 terms is twice the sum of the first 5 terms.

(a) 3   (b) 4   (c) ¾   (d) 2

91. The fifth term of an arithmetic progression is 24 and the sum of the first five terms is 80. Find the first term.

(a) 9   (b) 7   (c) 10   (d) 8

92. If the first term in a G.P. is 2 and the fourth term is 54. What is the common ratio?

(a) 3   (b) 4   (c) 2   (d) 5

93. If $3x2 - xy = 24$ and $x+y = 4$, then x and y are.

(a) 3, 4 and -5,6   (b) 2,5 and 5,3   (c) -2,3 and 1,6   (d) 4,5 and 5,-6

94. If the number 357x25x is divisible by both 3 and 5, then the missing digits in the units place and the thousandth place respectively are:

(a) 0,6   (b) 5,6   (c) 5,4   (d) None of these

95. The citizens of planet nigiet have developed their decimal system in base 7. A certain street in nigiet contains 1000 (in base 7) buildings numbered 1 to 1000. How many 3s are used in numbering these buildings?

(a) 135   (b) 147   (c) 200   (d) 150

96. In an office there are 114 tables and 129 chairs. If 1/6th of the tables and 1/3rd of the chairs are broken, how many people work in the office when each person requires one table and one chair?

(a) 75   (b) 85   (c) 65   (d) 95

97. If $(a^2-2ab+b^2)/(a^2+ab+b^2) = 1/3$, then find a/b

(a) 1   (b) 2   (c) 3   (d) 4

98. A fisherman's day is rated as good if he catches 9 fishes, fair if 7 fishes and bad if 5 fishes. He catches 53 fishes in a week and had good, fair and bad days in the week. How many good, fair and bad days did the fisher man had in the week?

(a) 4 Good, 2Fair, 1Bad day   (b) 3 Good, 2 Fair, 2 Bad day

(c) 2 Good, 4Fair, 1Bad day   (d) 4 Good,1Fair, 2Bad day

99. The units digit of $(137^{13})^{47}$ is:

(a) 1   (b) 2   (c) 3   (d) None of these

100. The remainder obtained when $23^{95}+55^{95}$ is divided by 78 is:

(a) 5   (b) 6   (c) 0   (d) 7