



THE VOLUME DEFENCE AND EDUCATION ACADEMY

"Your Success, Our Commitment"

CDS Mathematics Practice Set: Number System (answer key)

1. The unit digit in the product $(2467)^{153} \times (341)^{72}$ is:

- A) 1
- B) 3 ✓
- C) 7
- D) 9

2. A number when divided by 899 leaves a remainder 63. If the same number is divided by 29, the remainder will be:

- A) 3
- B) 4
- C) 5 ✓
- D) 6

3. The sum of the first 45 natural numbers is:

- A) 1035 ✓
- B) 1280
- C) 2070
- D) 2140

4. How many three-digit numbers are divisible by 6?

- A) 149
- B) 150 ✓
- C) 151
- D) 166

5. The HCF of two numbers is 11 and their LCM is 7700. If one number is 275, the other is:

- A) 279
- B) 283
- C) 308 ✓
- D) 318

6. The value of $0.\overline{39}$ in fraction form is:

- A) $39/100$
- B) $13/33$ ✓
- C) $93/100$
- D) $39/90$

7. If $n \in \mathbb{N}$, then $6n^2 + 6n$ is divisible by:

- A) 6 only
- B) 12 only
- C) 6 and 12 ✓
- D) 18 only



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8. Which of the following is a prime number?

- A) 161
- B) 221
- C) 373 ✓
- D) 437

9. The difference between the local value and face value of 7 in 657903 is:

- A) 0
- B) 7896
- C) 6993 ✓
- D) 903

10. The smallest 5-digit number exactly divisible by 41 is:

- A) 10004
- B) 10041 ✓
- C) 10045
- D) 10025

11. The sum of all even natural numbers between 1 and 31 is:

- A) 16
- B) 240 ✓
- C) 248
- D) 465

12. If $\sum_{k=1}^{10} k^2 = 385$, then $2^2 + 4^2 + 6^2 + \dots + 20^2 =$

- A) 770
- B) 1155
- C) 1540 ✓
- D) 3850

13. A number is as much greater than 36 as it is less than 86. The number is:

- A) 61 ✓
- B) 62
- C) 50
- D) 122

14. If $xy = 120$ and $x^2 + y^2 = 289$, then $x + y =$

- A) 20
- B) 23 ✓
- C) 169
- D) None of these

15. The unit digit of 7^{105} is:

- A) 1
- B) 5



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- C) 7
D) 9 ✓

16. The LCM of two numbers is 48. If their ratio is 2: 3, then their sum is:

- A) 28
B) 32
C) 40 ✓
D) 64

17. The HCF of $\frac{2}{3}, \frac{8}{9}, \frac{10}{27}, \frac{32}{81}$ is:

- A) $2/81$ ✓
B) $81/2$
C) $160/3$
D) $2/3$

18. If $34M$ is divisible by 9, then $M =$

- A) 2 ✓
B) 3
C) 9
D) 1

19. How many numbers between 200 and 600 are divisible by 4, 5 and 6?

- A) 5
B) 6 ✓
C) 7
D) 8

20. The remainder when 2^{31} is divided by 5 is:

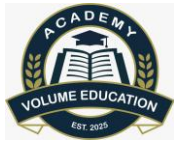
- A) 1
B) 2
C) 3 ✓
D) 4

21. The total number of prime factors in $4^{10} \times 7^3 \times 11^2$ is:

- A) 15 ✓
B) 20
C) 25
D) 22

22. A can do a work in 15 days and B in 20 days. Working together for 4 days, the work left is:

- A) $1/4$
B) $1/10$
C) $7/15$ ✓
D) $8/15$



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23. If 5 men or 9 women can do a work in 19 days, then 3 men and 6 women will do it in:

- A) 12 days
- B) 15 days ✓
- C) 18 days
- D) 21 days

24. A train 140 m long runs at 60 km/h. Time to pass a platform 260 m long is:

- A) 20 s
- B) 24 s ✓
- C) 28 s
- D) 30 s

25. A man rows upstream at 7 km/h and downstream at 10 km/h. His speed in still water is:

- A) 1.5 km/h
- B) 8.5 km/h ✓
- C) 17 km/h
- D) 3 km/h

26. If A's salary is 20% lower than B's salary, then B's salary is higher than A's by:

- A) 15%
- B) 20%
- C) 25% ✓
- D) 33.33%

27. A person incurs a loss of 5% by selling a watch for ₹1140. At what price should it be sold to gain 5%?

- A) ₹1200
- B) ₹1230
- C) ₹1260 ✓
- D) ₹1300

28. At what rate of simple interest will a sum double itself in 10 years?

- A) 5%
- B) 8%
- C) 10% ✓
- D) 12%

29. The difference between CI and SI for 2 years at 10% p.a. is ₹50. The principal is:

- A) ₹4000
- B) ₹5000 ✓
- C) ₹10000
- D) ₹11000



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30. The average of 50 numbers is 30. If 35 and 40 are removed, the new average is:

- A) 28.32
- B) 29.68 ✓
- C) 28.78
- D) 29.27

31. The ratio of ages of A and B is 4: 3. After 6 years, it becomes 11: 9. A's present age is:

- A) 16
- B) 20
- C) 24 ✓
- D) 28

32. 40% of a number is equal to $\frac{3}{5}$ of another number. The ratio is:

- A) 2 : 3
- B) 3 : 2 ✓
- C) 3 : 4
- D) 4 : 3

33. A vendor buys toffees at 6 for ₹1. How many for ₹1 must he sell to gain 20%?

- A) 3
- B) 4
- C) 5 ✓
- D) 6

34. In a library, 20% books are Hindi. Of the remaining, 50% are English and the rest (9000) are regional. Total books are:

- A) 15000
- B) 18000
- C) 22500 ✓
- D) 25000

35. ₹12500 amounts to ₹15500 in 4 years (SI). The rate of interest is:

- A) 3%
- B) 4%
- C) 5%
- D) 6% ✓

36. A fruit seller sells 40% apples and still has 420 apples. Originally he had:

- A) 588
- B) 600
- C) 672
- D) 700 ✓



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37. If 12 pens cost ₹84, the cost of 10 pens is:

- A) ₹60
- B) ₹70 ✓
- C) ₹72
- D) ₹80

38. The difference between a two-digit number and the number obtained by interchanging its digits is 36. The difference between the digits is:

- A) 3
- B) 4 ✓
- C) 6
- D) 9

39. A mixture contains alcohol and water in the ratio 4: 3. If 5 L water is added, the ratio becomes 4: 5. The quantity of alcohol is:

- A) 10 L
- B) 12 L
- C) 15 L
- D) 18 L ✓

40. The price of an item is increased by 20% and then decreased by 20%. The net change is:

- A) 0%
- B) 4% increase
- C) 4% decrease ✓
- D) 2% decrease

41. What is the least number which when divided by 5, 6, 7 and 8 leaves a remainder 3, but when divided by 9 leaves no remainder?

- A) 843
- B) 1683 ✓
- C) 2523
- D) 3363

42. Find the average of all prime numbers between 30 and 50.

- A) 37.8
- B) 39.8
- C) 40.2
- D) 41.5 ✓

43. A can do a piece of work in 10 days and B in 15 days. They work together for 5 days and then B leaves. In how many days will A finish the remaining work?

- A) 1 day
- B) 1.66 days ✓



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C) 2 days

D) 5 days

44. A man buys a cycle for ₹1400 and sells it at a loss of 15%. The selling price is:

A) ₹1090

B) ₹1160

C) ₹1190 ✓

D) ₹1202

45. If $\log_{10} 2 = 0.3010$, the number of digits in 2^{64} is:

A) 18

B) 19

C) 20 ✓

D) 21

46. 1.14 expressed as a percentage of 1.9 is:

A) 6%

B) 10%

C) 60% ✓

D) 90%

47. The ratio of two numbers is 3: 4 and their HCF is 4. Their LCM is:

A) 12

B) 16

C) 24

D) 48 ✓

48. A person crosses a 600 m long street in 5 minutes. His speed in km/h is:

A) 3.6

B) 7.2 ✓

C) 8.4

D) 10

49. A sum of money amounts to ₹815 in 3 years and ₹854 in 4 years at simple interest. The sum is:

A) ₹650 ✓

B) ₹690

C) ₹698

D) ₹700

50. If $x + y = 10$ and $xy = 21$, then $x^2 + y^2 =$

A) 58 ✓

B) 64

C) 79

D) 100