

# NUMBER SYSTEM



**RASHID**

## TYPES OF NUMBERS

- Natural numbers (1,2,3,4,5.....)
- Whole numbers (0,1,2,3,4,5.....)
- Integers (.....-3,-2,-1,0,1,2,3.....)
- Odd numbers (1,3,5,7,9,11,13.....)
- Even numbers (2,4,6,8,10,12.....)

## TYPES OF NUMBERS

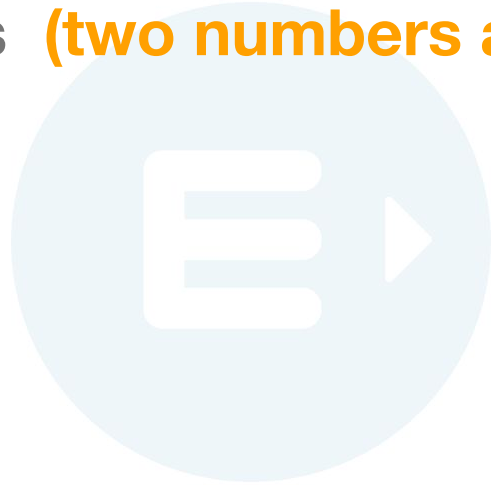
- Rational numbers (can be written in  $p/q$  form,  $p$  and  $q$  are integers)
- Irrational numbers (cannot be written in  $p/q$  form,  $p$  and  $q$  are integers)
- Real numbers (includes both rational and irrational numbers)

## TYPES OF NUMBERS

- Prime numbers (have only 2 factors)
- Composite numbers (have more than 2 factors)

## TYPES OF NUMBERS

- **Coprime numbers** (two numbers are coprime if their **HCF is 1**)



## DIVISIBILITY RULES

- **Divisible by 2 :** When last digit is 0, 2, 4, 6, 8
- **Divisible by 3 :** When sum of digits is divisible by 3
- **Divisible by 4 :** When last two digits are divisible by 4 or, they are zeros
- **Divisible by 5 :** When last digit is 0 or 5
- **Divisible by 6 :** When the number is divisible by 2 and 3 both



## DIVISIBILITY RULES

- **Divisible by 8 :** When last three digits is divisible by 8 or, they are zeros
- **Divisible by 9 :** When sum of digits is divisible by 9
- **Divisible by 10 :** When last digit is 0

## DIVISIBILITY RULES

- **Divisible by 11** : When sum of odd and even place digits difference is 0 or divisible by 11

eg: 217382

Sum of odd place digits =  $2+7+8 = 17$

Sum of even place digits =  $1+3+2 = 6$

$17 - 6 = 11$ , hence 217382 is divisible by 11.

1. Which of the following numbers is divided by 3?

(a) 8703572

(b) 8703541

(c) 8703593

(d) 8765001



2. Which of the following options is completely divisible by 11 ?

(a) 809781

(b) 116571

(c) 963391

(d) 107611



3. The number 23474 is exactly divisible by:

- (a) 2 and 3 only
- (b) 2 and 4 only
- (c) 2 and 11 only**
- (d) 2 only



4. Which of the following numbers is divisible by 6?

**(a) 23408**

(b) 43923

(c) 100246

(d) 349722



5. What should be the value of N to make 396258N divisible by 8?

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



6. If the number  $687x29$  is divisible by 9, then the value of  $2x$  is:

- (a) 8
- (b) 3
- (c) 2
- (d) 4



7. What should replace \* in the number  $94*2357$ , so that the number is divisible by 11?

(a) 3 (b) 7 (c) 1 (d) 8



8. If the 7-digit number  $x468y05$  is divisible by 11, then what is the value of  $(x+y)$ ?

(a) 8 (b) 10 (c) 14 (d) **12**



9. The eight digit number  $5x32465y$  is divisible by 88. What is the value of  $(2x + 3y)$ ?

(a) 18 (b) 20 (c) 16 (d) **24**



10. If the 8-digit number  $789x531y$  is divisible by 72, then the value of  $(5x - 3y)$  is :

(a) 0 (b) **-1** (c) 2 (d) 1



11. If  $4M37094267N$  is divisible by both 8 and 11, where M and N are single digit integers, then the values of M and N are:

- (a)  $M = 5, N = 6$
- (b)  $M = 2, N = 5$
- (c)  $M = 5, N = 2$
- (d)  $M = 5, N = 4$



12. If the number  $34k56k$  is divisible by 6, then what will be the largest value of  $k$ ?

(a) 6 (b) 8 (c) 9 (d) 4



13. Find the difference between squares of the greatest value and the smallest value of  $P$  if the number  $5306P2$  is divisible by 3.

(a) 60 (b) 68 (c) 36 (d) 6



14. What is the least value of  $x$  such that  $517x324$  is divisible by 12?

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



15. If the 5-digit number  $688xy$  is divisible by 3, 7 and 11, then what is the value of  $(5x + 3y)$ ?

(a) 43 (b) 23 (c) 36 (d) **39**



16. The digit in unit place of the product  $49237 \times 3995 \times 738 \times 83 \times 9$  is



A. 0

B. 7

C. 5

D. 6

# UNIT DIGIT

## UNIT DIGIT

$(822)^{373}$	<b>2</b>
$(32)^{1234}$	<b>4</b>
$(402)^{80}$	<b>6</b>
$(23)^{36}$	<b>1</b>
$(123)^{4513}$	<b>3</b>
$(983)^{4527}$	<b>7</b>

# UNIT DIGIT

## UNIT DIGIT

$(127)^{173}$	7
$(37)^{1234}$	9
$(407)^{80}$	1
$(28)^{36}$	6
$(18)^{4513}$	8
$(988)^{4527}$	2

# UNIT DIGIT

## UNIT DIGIT

$(125)^{173}$	5
$(36)^{1234}$	6
$(400)^{80}$	0
$(21)^{36}$	1
$(14)^{4513}$	4
$(989)^{4528}$	1

17. The unit digit in the product  $(122)^{173}$  is



A. 2

B. 4

C. 6

D. 8

18. The unit digit in the product  $(532)^{173} \times (627)^{6744}$  is



A. 2

B. 4

C. 6

D. 8

19. If  $x = (164)^{169} + (333)^{337} - (727)^{726}$ , then what is the unit digit of  $x$ ?



A. 5

B. 7

C. 9

D. 8

20. The last digit of the expression  $4 + 9^2 + 4^3 + 9^4 + \dots + 4^{99} + 9^{100}$  is :



A. 5

B. 3

C. 0

D. 9

**21. On dividing a number by 38, we get 70 as quotient and 12 as remainder. What is the number ?**



A. 2648

B. 2636

C. 2684

D. 2672

22. What least number must be added to 1039, so that the sum obtained is completely divisible by 29 ?



A. 4

B. 5

C. 8

D. 6

23. The divisor is 25 times the quotient and 5 times the remainder. If the quotient is 16, the dividend is:



A. 6400

B. 6480

C. 400

D. 480

24. If a number is divided by 624, the remainder will be 53. If the same number is divided by 16, then the remainder will be :



A. 7

B. 6

C. 4

D. 5

25. A number when divided by 361 gives a remainder 47. If the same number is divided by 19, the remainder obtained is:



A. 3

B. 8

C. 9

D. 1

26. When an integer  $n$  is divided by 6, the remainder is 5. What is the remainder if  $9n$  is divided by 6 ?



A. 3

B. 2

C. 4

D. 5

27. If  $n$  is divided by 5 the remainder is 2 what will be the remainder if  $7n$  is divided by 5?



A. 3

B. 2

C. 4

D. 1

28. A number when divided by 6 leaves remainder 3. When the square of the same number is divided by 6, the remainder is:



A. 3

B. 2

C. 0

D. 1

29. When a number  $M$  is divided by 7, the remainder is 6. What is the remainder if the square of  $M$  is divided by 7 ?



A. 4

B. 1

C. 3

D. 2

30. If a number is divided by 3, the remainder will be 2. If the number is added by 5 and then divided by 3, then what will be the remainder?



A. 0

B. 1

C. 3

D. 2

**31. When a number is divided by 3, the remainder is 2. Again, when the quotient is divided by 7, the remainder is 5. What will be the remainder when the original number is divided by 21?**

A. 14

B. 13

C. 17

D. 16

32. Two positive numbers differ by 1280. When the greater number is divided by the smaller number, the quotient is 7 and the remainder is 50. The greater number is?



A. 1458

B. 1485

C. 1585

D. 1558

33. What will be the remainder when  $141 * 142 * 143$  is divided by 6 ?



A. 2

B. 5

C. 0

D. 4

34. When  $(77^{77} + 77)$  is divided by 78, the remainder is :



A. 76

B. 77

C. 74

D. 75

35. If  $n$  is even,  $(6^n - 1)$  is divisible by :



A. 37

B. 35

C. 30

D. 6

**36. Two numbers when divided by 17, leave remainders 13 and 11 respectively. If the sum of those two numbers is divided by 17, the remainder will be**



A. 13

B. 11

C. 7

D. 4

37.  $(7^{19} + 2)$  is divided by 6, the remainder is:



A. 5

B. 3

C. 2

D. 1

38. The remainder when  $41^{77}$  is divided by 7 is :



A. 1

B. 6

C. 5

D. 3

39. When  $(2^{24} - 1)$  is divided by 7, the remainder is :



A. 0

B. 4

C. 2

D. 1

40. The remainder when  $3^{21}$  is divided by 5 is :



A. 3

B. 4

C. 2

D. 1

41. The remainder when  $127^{97} + 97^{97}$  is divided by 32 is :



A. 0

B. 4

C. 2

D. 7

42. The number of factors of 3600 is:



A. 45

B. 44

C. 43

D. 22

43. How many positive factors of 40 are there?



A. 4

B. 3

C. 8

D. 6

44. How many factors of 108 is/are prime numbers?



A. 5

B. 3

C. 2

D. 6

45. If  $29^{41} + 37^{41}$  is divided by 33, then the remainder is



A. 3

B. 2

C. 0

D. 1

46. What is the remainder when we divide  $5^{70} + 7^{70}$  by 74



A. 5

B. 0

C. 7

D. 1

47. If  $71^{83} + 73^{83}$  is divided by 36, the remainder is:



A. 8

B. 0

C. 9

D. 13

48.  $(4^{61} + 4^{62} + 4^{63})$  is divisible by



A. 3

B. 11

C. 13

D. 17

49. Which one of the following will completely divide  $5^{71} + 5^{72} + 5^{73}$  ?



A. 160

B. 150

C. 155

D. 30

50. Which of the following numbers will completely divide  $7^{82} + 7^{83}$

$7^{81} +$



A. 389

B. 399

C. 397

D. 387

51. The sum of the digits of a 2 digit number is 17. If we add 9 to the number, the new number obtained is a number formed by interchange of the digits. Find the number ?

A. 89

B. 98

C. 78

D. 87

52. How many numbers from 1 to 200 is divisible by 7 ?



A. 27

B. 28

C. 29

D. 30

53. How many numbers between 1000 and 3000 are divisible by 15 ?



A. 134

B. 133

C. 135

D. 132

54. How many numbers from 1000 to 3000 are divisible by 8 ?



A. 250

B. 251

C. 249

D. 252

55. How many natural numbers upto 100 are either divisible by 3 or 4 ?



A. 55

B. 58

C. 50

D. 52

56. How many numbers are there from 200 to 800 which are neither divisible by 5 nor by 7 ?



A. 407

B. 410

C. 413

D. 411

**THANK YOU**

