

Number System Divisibility



Divisibility rule of numbers from 1 to 9 :

- ✓ 2 The last digit is even (0,2,4,6,8)
- ✓ 3 The sum of the digits is divisible by 3
- ✓ 4 The last 2 digits are divisible by 4
- ✓ 5 The last digit is 0 or 5
- ✓ 6 Should satisfies both 2 and 3 divisibility rule above
- ✓ 7 Double the last digit and subtract it from a number made by the other digits. The result must be divisible by 7
- ✓ 8 The last three digits are divisible by 8
- ✓ 9 The sum of the digits is divisible by 9
- ✓ 10 The number ends in 0
- ✓ 11 the difference between the sum of digits in the odd positions and the sum of digits in the even positions is 0 or a multiple of 11
- ✓ 12 The number is divisible by both 3 *and* 4 (Should satisfies both 3 and 4 divisibility rule above)



1. If the product $4864 * 9 P 2$ is divisible by 12, then find the value of p.

a) 1

b) 2

c) 3

d) 4

2. If a number $824X97$ is exactly divisible by 11, what will be the value of X?

- a) 9
- b) 4
- c) 1
- d) 5

3. Let $N=5ab42ab$. If N is exactly divisible by 180, then the sum of the digits in N is ?

- a) 18
- b) 24
- c) 27
- d) 36



4. 476 ** 0 is divisible by both 3 and 11. Find the non zero digits in the hundred's and ten's places are respectively.

- a) 6 and 2
- b) 6 and 5
- c) 8 and 2
- d) 8 and 5

5. If x and y are the two digits of the number $653xy$ such that this number is divisible by 80, then $x + y$ is equal to?

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

1. How many five digit multiples of 11 are there, if the five digits be 1, 3, 4, 5 and 7 in some order?
- (a) 36
 - (b) 12
 - (c) 24
 - (d) None of these



2. If $x = 26^3 + 24^3 + 16^3 + 18^3$ then x divided by 84 leaves a remainder of

(a) 83

(b) 41

(c) 0

(d) 8



3. Find the perfect decimal divisor of 3333_5 .

(a) 15

(b) 25

(c) 6

(d) 75



4. $M^4 + N^4 - 2$ is divisible by 16 if M & N are

(a) 234, 528

(b) 541, 684

(c) 384, 4495

(d) 297, 981



5. Which of the following number is divisible by 5?

(a) 424242242423_4

(b) 4444333221_5

(c) 11111122222333344455_6

(d) None of these



6. Find the remainder when $(135678)_{16}$ is divided by 5.

(a) 0

(b) 1

(c) 2

(d) 4



7. A 60 digit number is formed by writing natural numbers from 1 as 12345....

Find the remainder when this number is divided by 32.

- (a) 9
- (b) 0
- (c) 5
- (d) 31



8. The number of positive integers not greater than 1000, which are not divisible by 3, 5 and 7 is

(a) 457

(b) 675

(c) 543

(d) None of these



9. The number of positive integers 'n' from 35 to 150 such that $(n - 1)!$ is not divisible by n is

(a) 67

(b) 33

(c) 23

(d) 25



10. When 10^x is divided by 13, remainder is 1. If x is a natural number less than 153, then how many values can 'x' take?

- (a) 12
- (b) 10
- (c) 30
- (d) 25



11. On base 8, first 100 natural numbers are written. How many of these numbers are divisible by 7?

(a) 70

(b) 21

(c) 14

(d) 28



12. Let $N = n^6 + 3n^5 - 5n^4 - 15n^3 + 4n^2 + 12n$ for any $n \in \mathbb{N}$.

The greatest divisor of N among the number given below is

- (a) 2
- (b) 6
- (c) 10
- (d) 30



13. Find the largest 'n' such that $n + 10$ divides $n^3 + 100$.

(a) 890

(b) 99

(c) $n = 1000$

(d) None of these



14. Let $x_n = 6^n + 8^n$. Find the remainder when x_{49} is divided by 49.

(a) 48

(b) 1

(c) 47

(d) 0



15. Let $N = n^{12} - n^8 - n^4 + 1$, where n is any odd number. Which one of the following can divide N ?

(a) 27

(b) 512

(c) 1029

(d) None of these

