



Number System

Number	
Real Number	Imaginary Number

Real Number	
Rational Number	Irrational Number

Rational Number	
Integer	Fractional Number

Integer		
Negative	Zero	Positive
Integer		
Odd	Even	



ME Learning

চাকরি প্রস্তুতির নির্ভরযোগ্য প্রতিষ্ঠান

সকল ধরনের চাকরি সহ IBA ও
IELTS প্রস্তুতির সহায়ক প্রতিষ্ঠান।
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Positive= Natural Number

One	Prime Number	Composite
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Prime Number

Range	Prime Number	Total
1-10	2,3,5,7	4
11-20	11,13,17,19	4
21-30	23,29	2
31-40	31, 37	2
41-50	41, 43, 47	3
51-60	53, 59	2
61-70	61,67	2
71-80	71, 73, 79	3
81-90	83, 89	2
91-100	97	1
1-100	Total	25
101-200	Total Prime Number	21



Divisibility Technique

Divisibility Rule of 1

Every number is divisible by 1. Divisibility rule for 1 doesn't have any condition. Any number divided by 1 will give the number itself, irrespective of how large the number is. For example, 3 is divisible by 1 and 3000 is also divisible by 1 completely.

Divisibility Rule of 2

If a number is even or a number whose last digit is an even number i.e. 2,4,6,8 including 0, it is always completely divisible by 2.

Example: 508 is an even number and is divisible by 2 but 509 is not an even number, hence it is not divisible by 2. Procedure to check whether 508 is divisible by 2 or not is as follows:

- Consider the number 508
- Just take the last digit 8 and divide it by 2
- If the last digit 8 is divisible by 2 then the number 508 is also divisible by 2.

Divisibility Rules for 3

Divisibility rule for 3 states that a number is completely divisible by 3 if the sum of its digits is divisible by 3.

Consider a number, 308. To check whether 308 is divisible by 3 or not, take sum of the digits (i.e. $3+0+8=11$). Now check whether the sum is divisible by 3 or not. If the sum is a multiple of 3, then the original number is also divisible by 3. Here, since 11 is not divisible by 3, 308 is also not divisible by 3.

Similarly, 516 is divisible by 3 completely as the sum of its digits i.e. $5+1+6=12$, is a multiple of 3.

Divisibility Rule of 4

If the last two digits of a number are divisible by 4, then that number is a multiple of 4 and is divisible by 4 completely.

Example: Take the number 2308. Consider the last two digits i.e. 08. As 08 is divisible by 4, the original number 2308 is also divisible by 4.

Divisibility Rule of 5

Numbers, which last with digits, 0 or 5 are always divisible by 5.

Example: 10, 10000, 10000005, 595, 396524850, etc.



Divisibility Rule of 6

Numbers which are divisible by both 2 and 3 are divisible by 6. That is, if the last digit of the given number is even and the sum of its digits is a multiple of 3, then the given number is also a multiple of 6.

Example: 630, the number is divisible by 2 as the last digit is 0.

The sum of digits is $6+3+0 = 9$, which is also divisible by 3.

Hence, 630 is divisible by 6.

Divisibility Rule of 8

If the last three digits of a number are divisible by 8, then the number is completely divisible by 8.

Example: Take number 24344. Consider the last two digits i.e. 344. As 344 is divisible by 8, the original number 24344 is also divisible by 8.

Divisibility Rule of 9

The rule for divisibility by 9 is similar to divisibility rule for 3. That is, if the sum of digits of the number is divisible by 9, then the number itself is divisible by 9.

Example: Consider 78532, as the sum of its digits ($7+8+5+3+2$) is 25, which is not divisible by 9, hence 78532 is not divisible by 9.

Divisibility Rule of 10

Divisibility rule for 10 states that any number whose last digit is 0, is divisible by 10.

Example: 10, 20, 30, 1000, 5000, 60000, etc.

Divisibility Rules for 11

If the difference of the sum of alternative digits of a number is divisible by 11, then that number is divisible by 11 completely.

i.e., Sum of digits in odd places – Sum of digits in even places = 0 or a multiple of 11

In order to check whether a number like 2143 is divisible by 11, below is the following procedure.

- Group the alternative digits i.e. digits which are in odd places together and digits in even places together. Here 24 and 13 are two groups.
- Take the sum of the digits of each group i.e. $2+4=6$ and $1+3=4$
- Now find the difference of the sums; $6-4=2$



- If the difference is divisible by 11, then the original number is also divisible by 11. Here 2 is the difference which is not divisible by 11.
- Therefore, 2143 is not divisible by 11.

A few more conditions are there to test the divisibility of a number by 11. They are explained here with the help of examples:

If the number of digits of a number is even, then add the first digit and subtract the last digit from the rest of the number.

Example: 3784

Number of digits = 4

Now, $78 + 3 - 4 = 77 = 7 \times 11$

Thus, 3784 is divisible by 11.

If the number of digits of a number is odd, then subtract the first and the last digits from the rest of the number.

Example: 82907

Number of digits = 5

Now, $290 - 8 - 7 = 275 = 25 \times 11$

Thus, 82907 is divisible by 11.

Form the groups of two digits from the right end digit to the left end of the number and add the resultant groups. If the sum is a multiple of 11, then the number is

divisible by 11.

Example: $3774 := 37 + 74 = 111 := 1 + 11 = 12$

3774 is not divisible by 11.

$253 := 2 + 53 = 55 = 5 \times 11$

253 is divisible by 11.

Subtract the last digit of the number from the rest of the number. If the resultant value is a multiple of 11, then the original number will be divisible by 11.

Example: 9647

$9647 := 964 - 7 = 957$

$957 := 95 - 7 = 88 = 8 \times 11$

Thus, 9647 is divisible by 11.

Divisibility Rule of 12

If the number is divisible by both 3 and 4, then the number is divisible by 12 exactly.

Example: 5864



Sum of the digits = $5 + 8 + 6 + 4 = 23$ (not a multiple of 3)

Last two digits = 64 (divisible by 4)

The given number 5864 is divisible by 4 but not by 3; hence, it is not divisible by 12.

Class Practice

01) If x is an odd integer, for which of the following equations must y be an even integer?

- A) $xy=5$ B) $x + y=8$ C) $x+2y=7$ D) $2x+y=6$ E) None of these

02) If x , y , and z are consecutive non-zero integers, and if $x < y < z$, which of the following must be a positive odd integer?

- A) $x-z$ B) $x+y+1$ C) $x+y+z$ D) $xz-y$ E) None of these

03) If x and y are positive integers, each greater than 1, and if $13(x-1)=17(y-1)$, what is the least possible value of $(x+y)$.

- A) 32 B) 30 C) 26 D) 25 E) None of these

04) If the product of three consecutive integers is 120, then the sum of the integers is:

- A) 12 B) 14 C) 15 D) 18 E) None of these



05) The sum of squares of 3 consecutive integers is less than 97. What is the greatest possible value of the smallest one?

- A) 4 B) 5 C) 6 D) 7 E) None of these

06) When the positive integer n is divided by 8, the remainder is 3. What is the remainder if $3n$ is divided by 8?

- A) 0 B) 1 C) 2 D) 3 E) None of these

07) $2pq5$ is a four digit number divisible by 25. If the number formed from two digits pq is a multiple of 13. Then $pq=?$

- A) 10 B) 25 C) 52 D) 65 E) None of these

08) If both 11^2 and 3^3 are factors of the number $a \cdot 4^3 \cdot 6^2 \cdot 13^{11}$, then what is the smallest possible value of 'a'?

- A) 121 B) 3267 C) 363 D) 33 E) None of these

09) The greatest common factor of two positive integers is A. the least common multiple of the two integers is B. if one of the integers is C, what is the other number?

- A) $\frac{AB}{C}$ B) $\frac{BC}{A}$ C) $\frac{A}{C} + B$ D) $A + \frac{B}{C}$ E) None of these



10) What is the minimum number of chocolates that must be added to the existing stock of 260 chocolates so that the total stock can equally be divided among 1, 4, or 6 persons?

- A) 4 B) 8 C) 12 D) 16 E) None these

11) The light of Shahbag signal flashes every 120 seconds and that of Green road and Bata singnal flash every 60 and 90 seconds. If they all flash at 8:30 am, when will they flash again simultaneously?

- A) 8:36 am B) 8:35 am C) 8:33 am D) 8:40 am E) None of these

12) A number when divided by 195 leaves a remainder 47. If the same number is divided by 15, the remainder will be?

- A) 1 B) 2 C) 3 D) 4 E) None of these

13) The number of terms between 11 and 200 which are divisible by 7 but not by 3 are

- A) 18 B) 19 C) 27 D) 28 E) None of these

14) A number when divided by 3 leaves a remainder 1. When the quotient is divided by 2, it leaves a remainder 1. What will be the remainder when the number is divided by 6?

- A) 2 B) 3 C) 4 D) 5 E) None of these



15) When 24 is subtracted from a number, it reduces to its four-seventh. What is the sum of the digits of that number?

- A) 1 B) 9 C) 11 D) 13 E) None of these

16) In one classroom exactly two third of the seats are occupied. In another classroom with double the seating capacity of the first, exactly three quarters of the seats are occupied. If the students from both rooms are transferred into a third empty classroom that has a seating capacity exactly equal to the first two combined, what fraction of the seats in the third classroom is occupied?

- A) $\frac{3}{4}$ B) $\frac{2}{3}$ C) $\frac{6}{11}$ D) $\frac{13}{18}$ E) $\frac{12}{17}$

17) At room temperature, bacterium doubles in every 20 minutes, In two hours what will be the total number of bacteria from an initial number of 3?

- A) 18 B) 192 C) 144 D) 96 E) 729

18) In a class, If 4 students sit in each bench, there are 3 empty benches, but 6 students have to stand if 3 students sit each bench. How many students are there in that class?

- A) 50 B) 60 C) 70 D) 80 E) None of these

19) What is the last(Unit) digit of 4^{218}

- A) 2 B) 4 C) 6 D) 8 E) None of these



20) The units' digit of a two digit number is thrice its tens digit. If 36 is added to the number, the digits interchange their place. Find the number.

- A) 26 B) 45 C) 62 D) 54 E) None of these

21) In a two-digit number, the digit in the unit's place more than twice the digit in ten's place by 1. If the digits in the unit's place and the ten's place are interchanged, difference between the newly formed number and the original number by 1. What is the original number?

- A) 25 B) 37 C) 49 D) 52 E) None of these

22) If the numerator of a fraction is increased by 2 and the denominator is increased by 3, the fraction becomes $\frac{7}{9}$ and if both the numerator as well as the denominator are decreased by 1, the fraction becomes $\frac{4}{5}$. What is the original fraction?

- A) $\frac{5}{6}$ B) $\frac{9}{11}$ C) $\frac{13}{16}$ D) $\frac{17}{21}$ E) None of these

Answer

01. D	02. D	03. A	04. C	05. A	06. B	07. C	08. C	09. A	10. A	11.A
12. B	13. A	14. C	15. C	16. D	17. B	18. B	19. C	20. A	21. B	22.A



Written Sample

- 01) In a class, If 4 students sit in each bench, there are 3 empty benches, but 6 students have to stand if 3 students sit each bench. How many students are there in that class?
- 02) In one classroom exactly two third of the seats are occupied. In another classroom with double the seating capacity of the first, exactly three quarters of the seats are occupied. If the students from both rooms are transferred into a third empty classroom that has a seating capacity exactly equal to the first two combined, what fraction of the seats in the third classroom is occupied?
- 03) The units' digit of a two digit number is thrice its tens digit. If 36 is added to the number, the digits interchange their place. Find the number.
- 04) In a two-digit number, the digit in the unit's place more than twice the digit in ten's place by 1. If the digits in the unit's place and the ten's place are interchanged, difference between the newly formed number and the original number by 1. What is the original number?
- 05) If the numerator of a fraction is increased by 2 and the denominator is increased by 3, the fraction becomes $\frac{7}{9}$ and if both the numerator as well as the denominator are decreased by 1, the fraction becomes $\frac{4}{5}$. What is the original fraction?