Preparations for placements.

denotations in Number systems.

N Natural Numbers: Countable numbers (1, 2, 3 etc)
There are infinite natural numbers and smallest number is (1).

E Even Numbers → Numbers divisible by 2. (2, 4, 6)
Denoted by E = 2, 4, 6, 8, - - - (smallest 2)

O Odd Numbers: Not divisible 2 (1, 3, 5, 7 - -)
O = 1, 3, 5, 7 - - (smallest 1)

Based on divisiblity there are two types of Natural Numbers

1) Prime Numbers: Natural Numbers which have exactly two factor, 1 and itself (smallest 2)
2) Composite Numbers:- Having more than 2 factors are Composite Numbers
24 = 2 x 2 x 3 x 3 (smallest 4)

W Whole Numbers:- Natural Number along with zero (0) (smallest = 0)

Z or I Integers :- Numbers with Negative & Non negative Natural Numbers with zero (0), Denoted by Z or I

R Real Numbers :- Numbers those are represented in Number line.

R^+ R^+ = Positive real Number

R^- R^- = Negative real Number.

Real Number = $R^+ + R^-$

Real Numbers = Rational Number + Irrational

Q Rational Numbers :- Any number that represented in P/q form and wher $q \neq 0$

Zero also Rational Number $\left(\frac{0}{1}\right)$.

Q' Irrational Numbers :- Numbers which are not or cannot be put in P/q form

Q'

Fraction :- fraction is a quantity which expresses a part of the whole

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Types of fractions :-

Proper fraction :- If numerator is less than its denominator , Ex = 1/2

Improper fraction :- If numerator is more than Denominator Ex = 2/1

Mixed fraction :- Consists of Integer and proper fraction Ex = -1/2.

Equivalent fraction :- Fraction with same value.
Ex = 1/1, 2/2.

* Some of the operations (Add, Sub, Mul, Div)

Commutative property for addition : a+b = b+a
Associative property for addition = (a+b)+c = a+(b+c)
↓
Same for Sub, mul, Div

C Complex Numbers :- Number of the form
(a+bi) → i = imaginary Number.

Divisibility Rules

Divisible by 2 :- Number divisible by 2 if it is Ends with Even or 0

Divisible by 3 :- Sum of digits divisible by 3

Divisible by 4 :- last 2 digits or ends with 2 0's (00) are divisible.

by 5 :- last digit is 5 or 0

by 6 :- divisible by both (2 and 3) then divisible by 6

by 7 :- oscilator (-2) for divisiblity test

by 11 :- Sum of the digits in even place & Sum of the digits in odd place difference is 0 or multiple of 11.

~~by 13 :-~~

Division algorithm

Dividend = (Divisor x Quotient) + Remindor

Tricks:-

1, 4, 4, 2, 1, 1, 4, 4, 1, 1
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
1 2 3 4 5 6 7 8 9 10

Sum of n numbers (odd) → n²
Sum of n number (Even) → n(n+1)
Sm of first n number (Natural) → [n(n+1)]/2
Sum of Squares of first n natural Numbers = [n(n+1)(2n+1)]/6

Sum of Cubes of first n natural numbers
$[n(n+1)/2]^2$

$(122)^{463}$
Reminder = 3
$(2)^3 = 8$

4) 463 (115
4
06
4
23
20
3

How many 3-digits numbers divisible by 6

(6) → 1 - 999

6) 999 (166 → Total 166.
6
39
36
39
36
3.

for 1 - 99

6) 99 (16
6
39
36
3.

Now = 166
16
150//