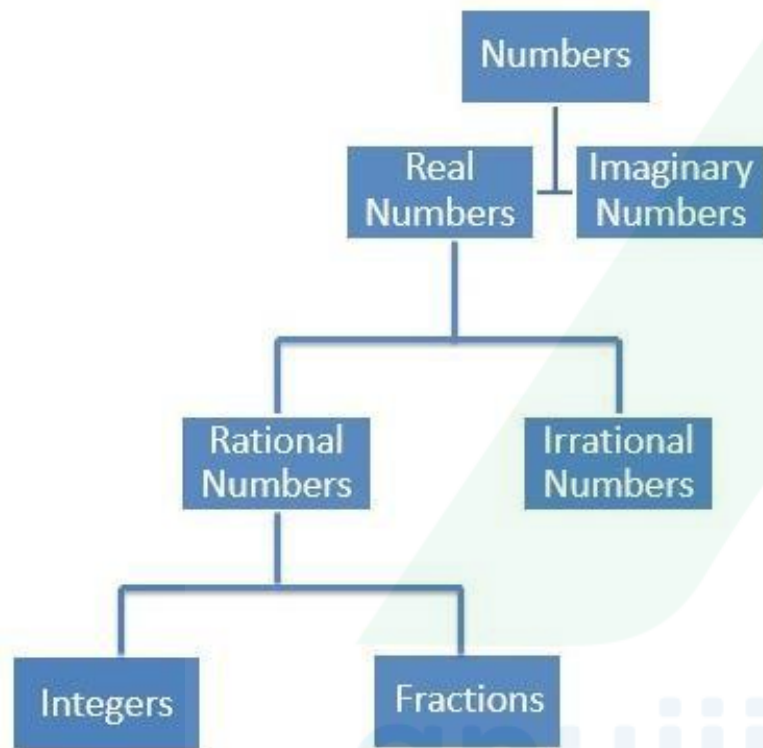




Number System



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Conversion of non-terminating decimals to fractions (p/q form)

Let's say the number has 'a' recurring decimals and 'b' non-recurring decimals,

Then p/q form can be represented as

$$\frac{(\text{Complete Number ignoring the Decimals}) - (\text{Non recurring part of the number})}{(\text{a times } 9 \text{ b times } 0)}$$



1. Convert $5.\overline{783}$ to p/q form.

2. Convert $0.15\overline{32}$ to p/q form.



Divisible by 2 : A number is divisible by 2 if its unit digit is any of the following: 0,2,4,6,8.

Divisible by 3: A number is divisible by 3 when its sum of digits is also divisible by 3.

Divisible by 4: A number is divisible by 4 the last 2 digits of the number are divisible by 4.

Divisible by 5: A number is divisible by 5 if its unit digit is either 5 or 0.

Divisible by 6 : A number is divisible by 6 if it is divisible by 2 and divisible by 3.



Divisible by 8: A number is divisible by 8 when its last 3 digits are divisible by 8.

Divisible by 9: A number is divisible by 9 when the sum of digits is also divisible by 9.

Divisible by 11: A number is divisible by 11 if the difference of sum of odd digits (from the right) and sum of even digits (from the right) is either 0 or a multiple of 11.

For example: 657382, 71085443



A number which is not divisible by any number except 1 and the number itself.

For example: 2, 3, 5, 7, 11...

Every prime number greater than 3 can be written in the form of $6k+1$ or $6k-1$

To check if a number 'a' is prime, list all the prime numbers up to the value of $\sqrt{a}$. If any of them divides 'a', it is not a prime. There are 25 prime numbers up to 100.



- A factor is a number which when divides the number leaves a remainder of 0.
- If a number exists of the form $N = a^p b^q c^r$, where a, b and c are prime numbers and p, q, r are natural numbers. Then, no. of factors = $(p + 1)(q + 1)(r + 1)$
- What are co-prime numbers?





Highest Common Factor (also called Greatest Common Divisor) is the largest factor of two or more numbers.

For example HCF of 10 and 4 is 2.



Example: 12, 36 and 48



LCM or Least Common Multiple of two or more numbers is the smallest possible number which can be divided by these numbers to leave a remainder of zero.

For example LCM of 10 and 4 is 20.



Example: 12, 36 and 48

Example: 14, 85, 4





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HCF of fractions: $\frac{\text{HCF of Numerator}}{\text{LCM of Denominator}}$

LCM of fractions: $\frac{\text{LCM of Numerator}}{\text{HCF of Denominator}}$

Product of two numbers = HCF * LCM



Example: $1/2$, $5/6$ and $7/8$

Example: $7/4$, $8/5$, $11/6$

