NUMBER SYSTEM

NUMBER SYSTEM

PRESENTED BY

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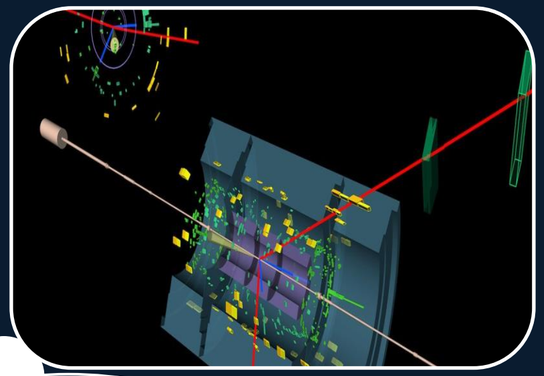
NUMBER SYSTEM

INTRODUCTION

A number system is a **mathematical notation** for representing numbers, which is essential for **counting**, **measuring**, and performing **mathematical operations.**

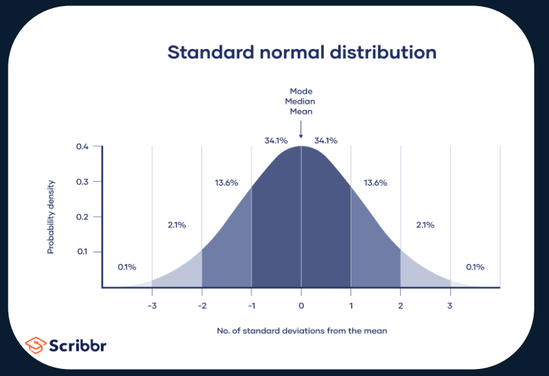
NUMBER SYSTEM

REAL LIFE USES

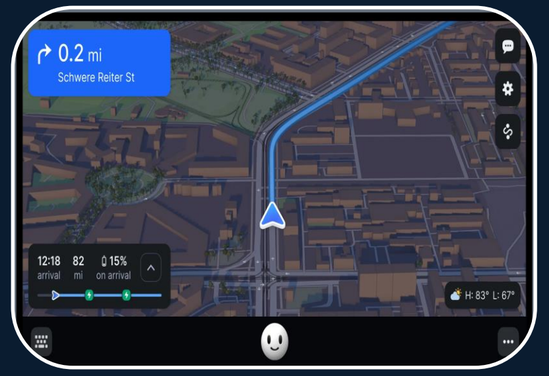


Engineering and Physics

Medicine and Biology



Statistics and Data Analysis

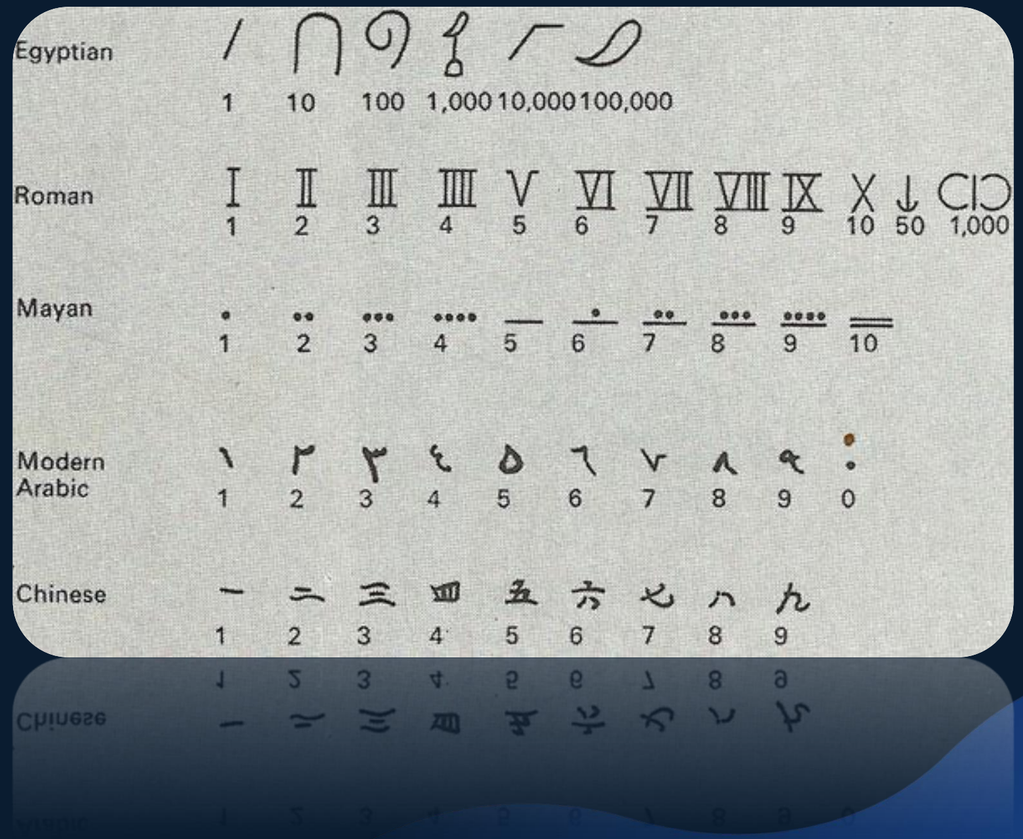


Geography and Navigation

NUMBER SYSTEM

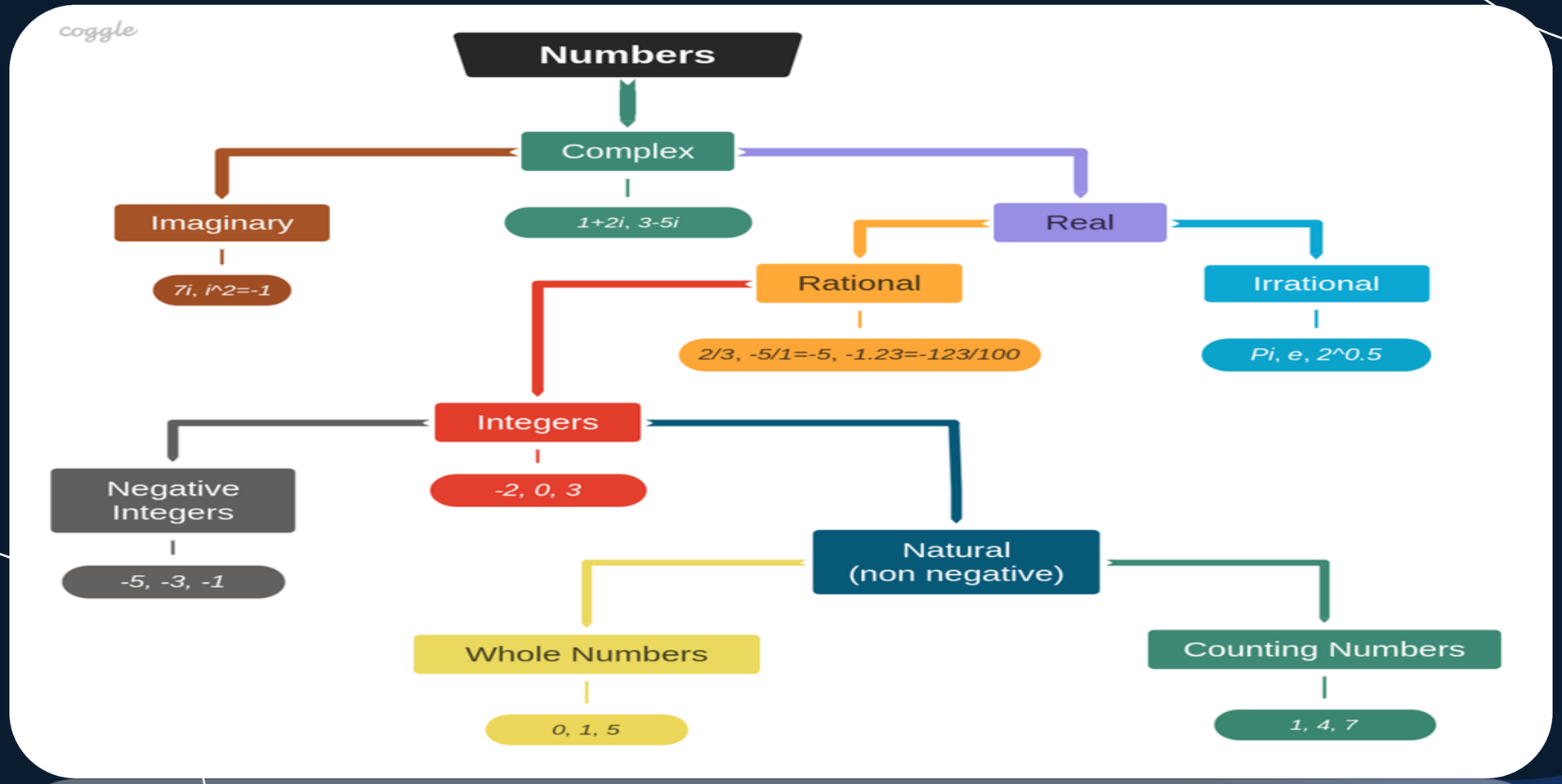
HISTORY

Number systems have progressed from the use of fingers and tally marks, perhaps more than 40,000 years ago.



NUMBER SYSTEM

CLASSIFICATION OF NUMBERS



NUMBER SYSTEM

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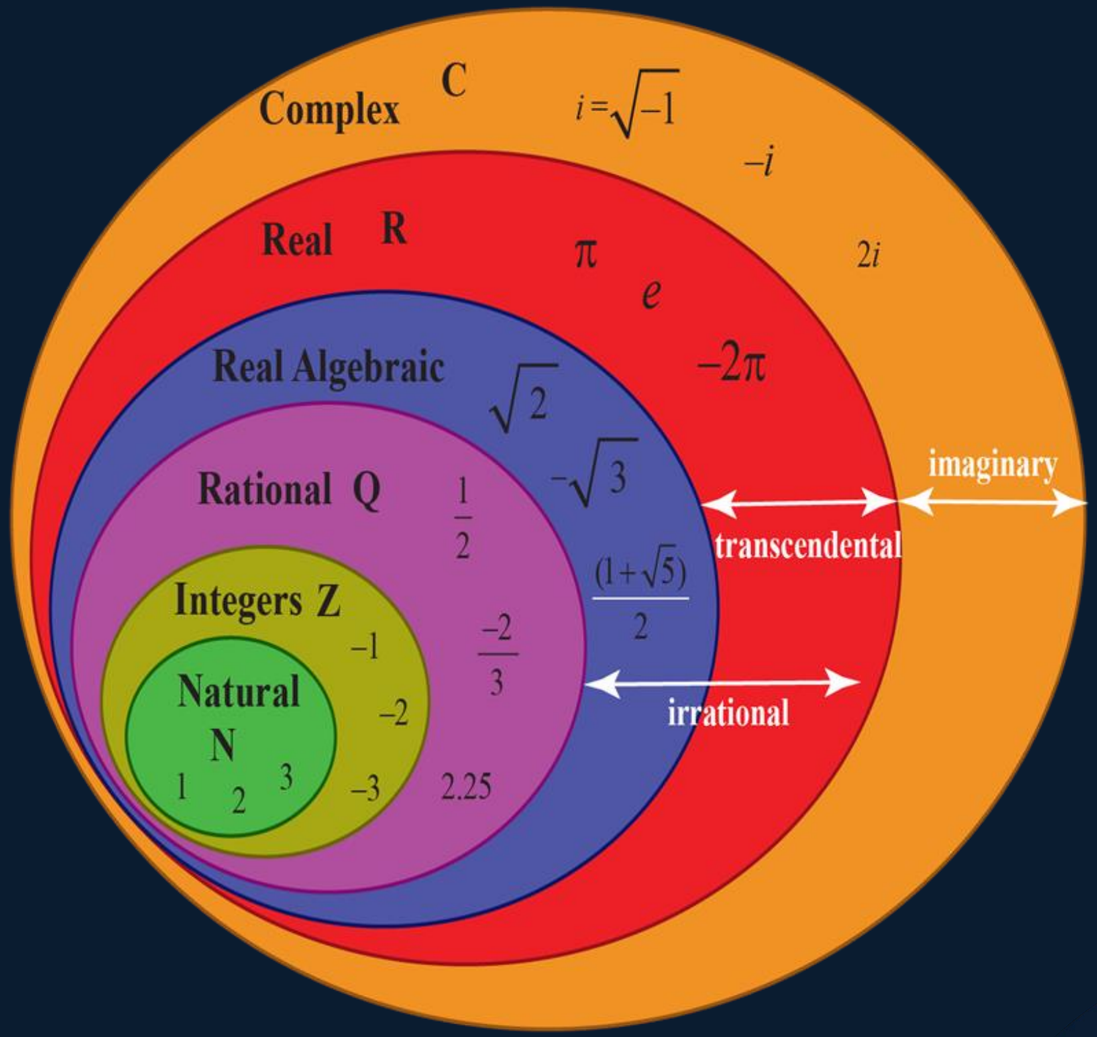
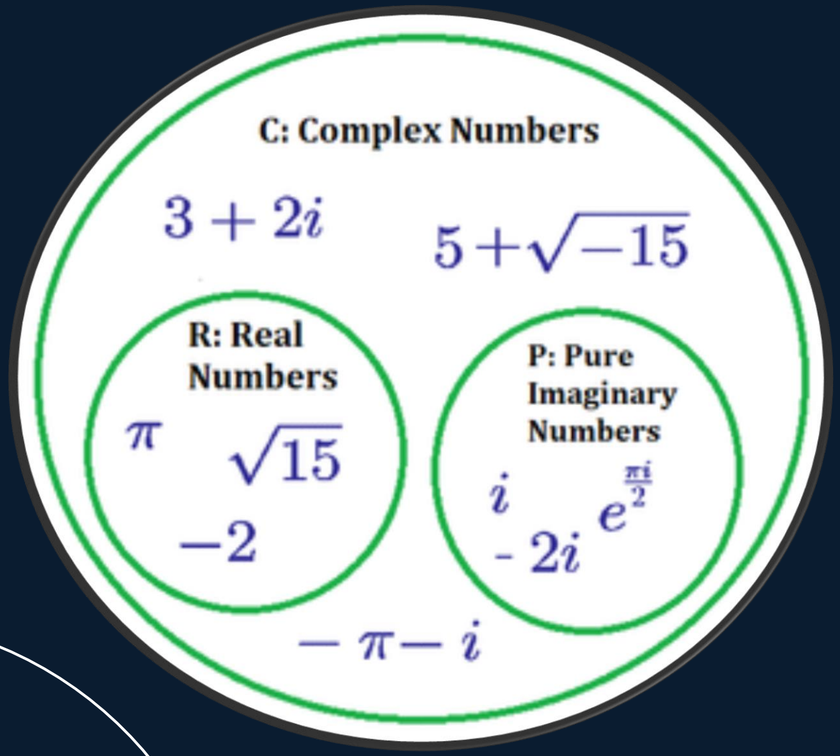
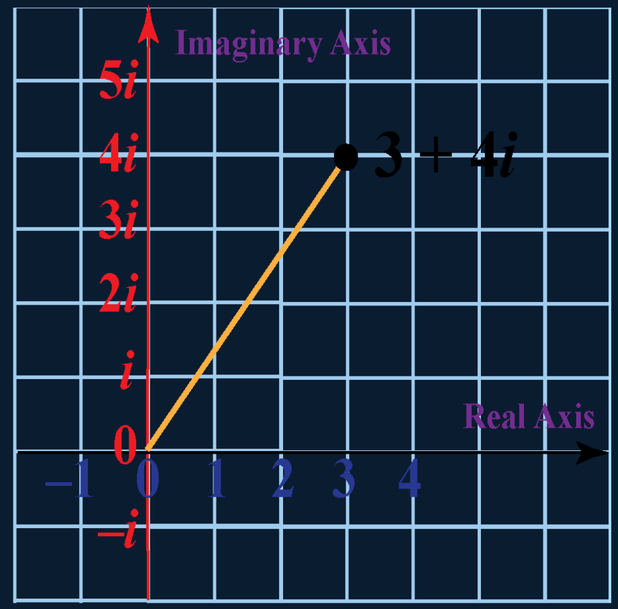


NUMBER SYSTEM

COMPLEX NUMBER

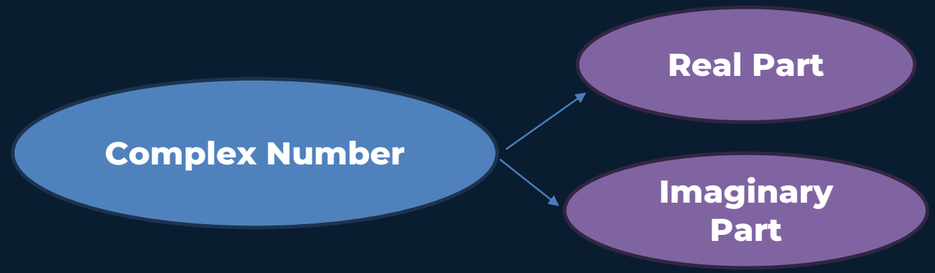




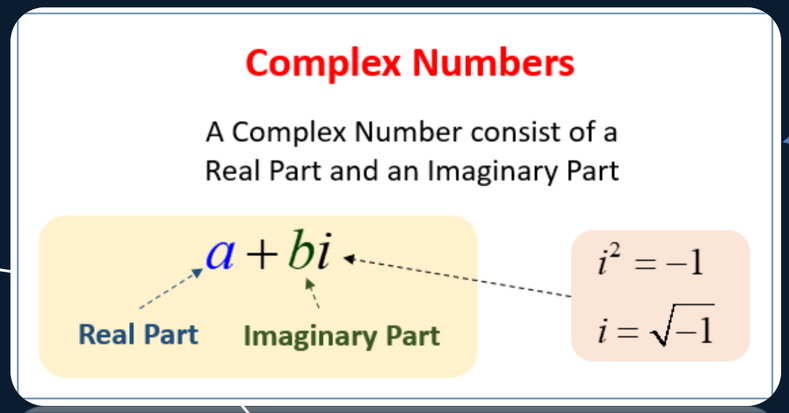
Here i is a imaginary unit

NUMBER SYSTEM

COMPLEX NUMBER

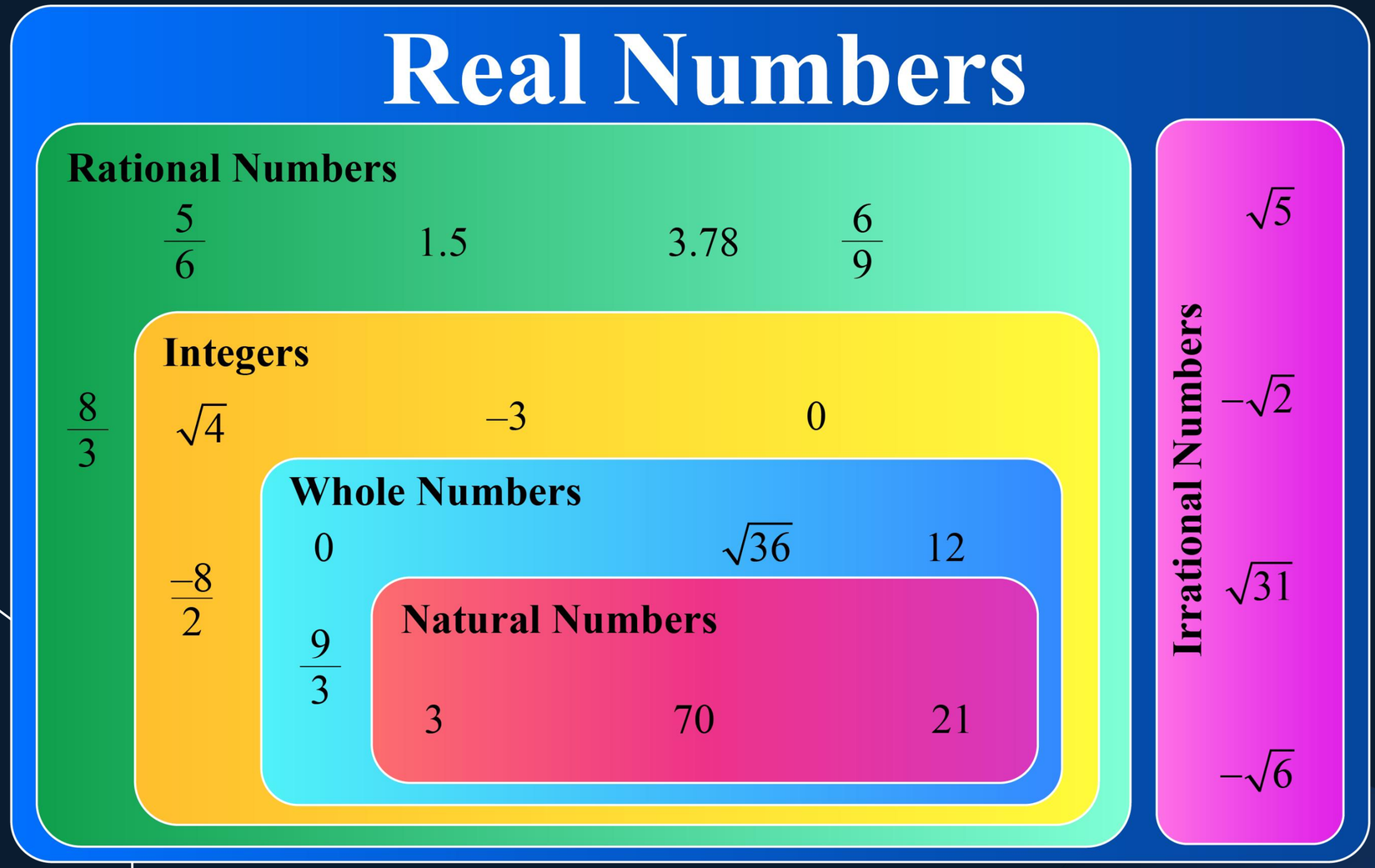


The main difference between real part and imaginary part is i. Imaginary always carry a imaginary unit i.



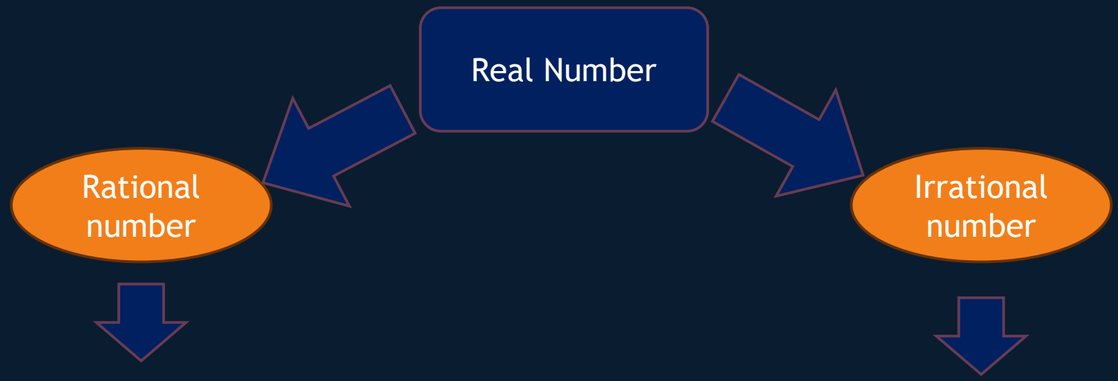
NUMBER SYSTEM

REAL NUMBER



NUMBER SYSTEM

REAL NUMBER



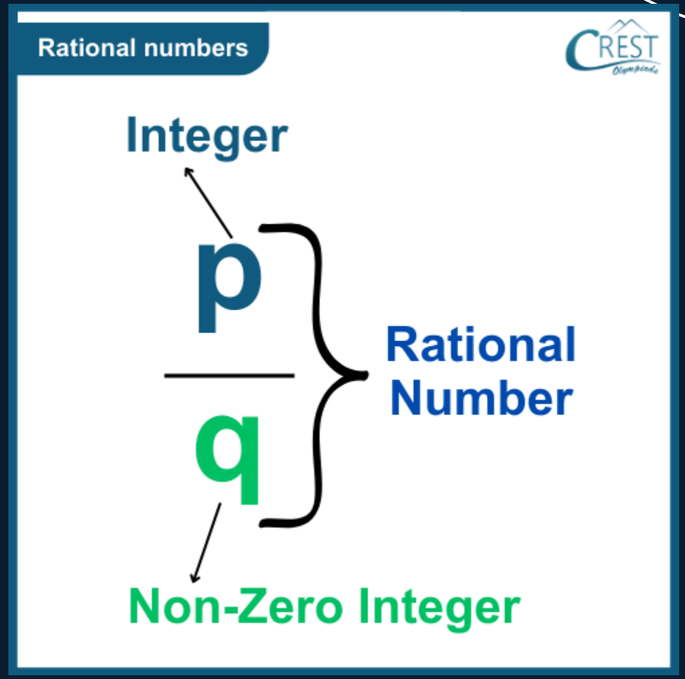
Rational Number IS Any Number That Can Be Written As A Ratio Or Fraction

An Irrational Number Is A Real Number That Cannot Be Written As A Simple Fraction

NUMBER SYSTEM

RATIONAL NUMBER

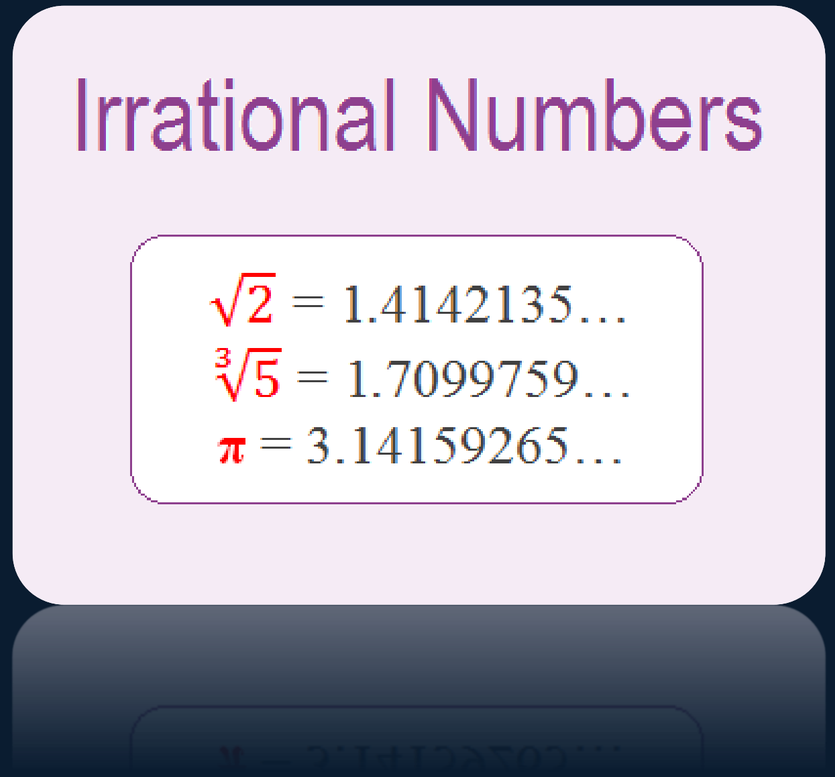
A rational number is any number that can be written as a **fraction**, where both the numerator and the denominator are **integers**, and the **denominator is not equal to zero**.



NUMBER SYSTEM

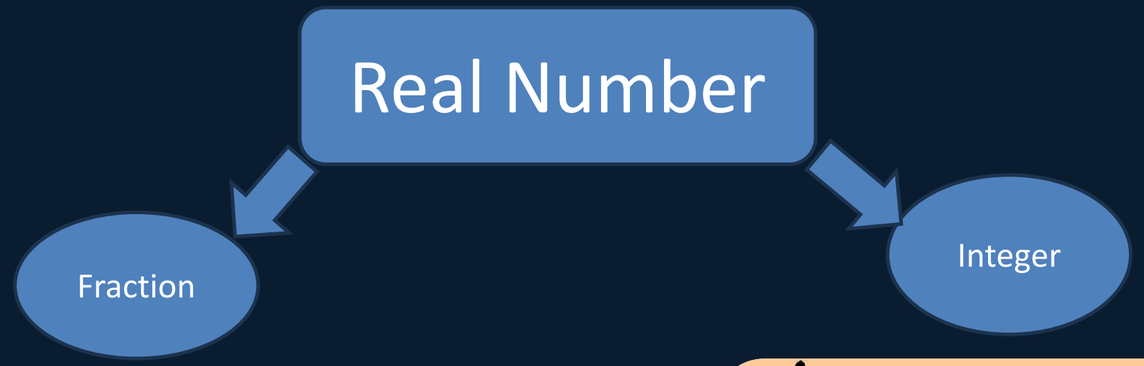
IRRATIONAL NUMBER

Irrational Number Is A Type Of Real An Number Which Cannot Be Represented As A **Simple Fraction**. It Cannot Be Expressed In The Form Of A **Ratio**.



NUMBER SYSTEM

REAL NUMBER



Fractions

A fraction is a number that describes a relationship between a part (represented by the numerator) and a whole (represented by the denominator).

Numerator
Number of parts we have

$$\frac{3}{5}$$

Fraction Bar

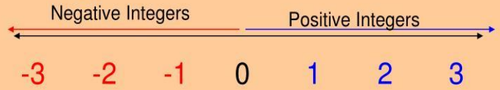
Denominator
Total parts in a whole

Integers

Integers are the whole numbers (0, 1, 2, 3, …)

and their opposites (-1, -2, -3, …)

Integers are modeled on a number line:

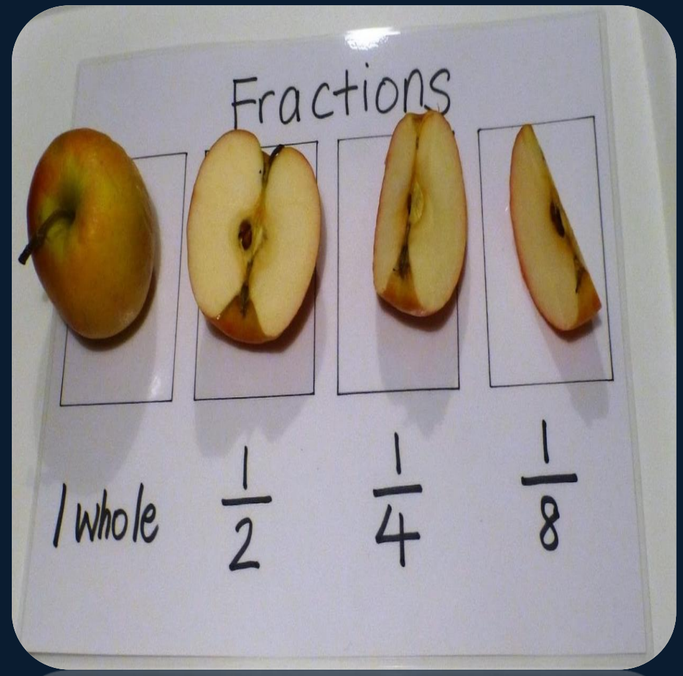


- As you move to the right on a number line, the integers increase in value
- As you move to the left on a number line, the integers decrease in value

NUMBER SYSTEM

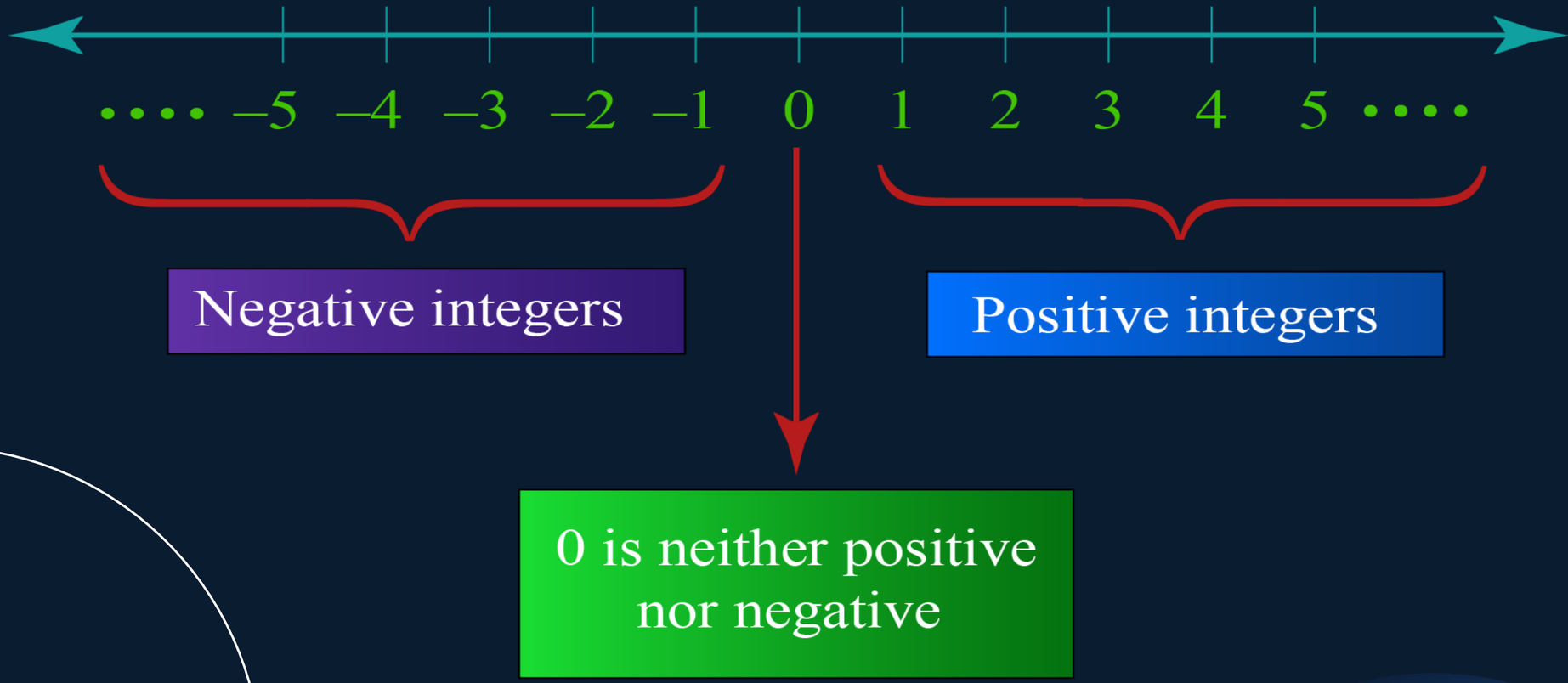
TYPE OF FRACTION

Proper Fraction	Improper Fraction	Mixed Number
$\frac{1}{2}$	$\frac{6}{5}, \frac{3}{3}$	$8\frac{1}{2}$
A fraction with a numerator that is less than the denominator.	A fraction with a numerator that is greater than or equal to the denominator.	A combination of a whole number and a fraction.



NUMBER SYSTEM

INTEGER



NUMBER SYSTEM

POSITIVE NUMBER

Positive Number

Composite

In Mathematics, composite numbers are numbers that have more than two factors.

4 6 8 9 10 15
Those are composite numbers

Prime

Prime numbers are numbers greater than 1 that only have two factors, 1 and the number itself.

2 3 7 11 13 17 23
Those are prime numbers

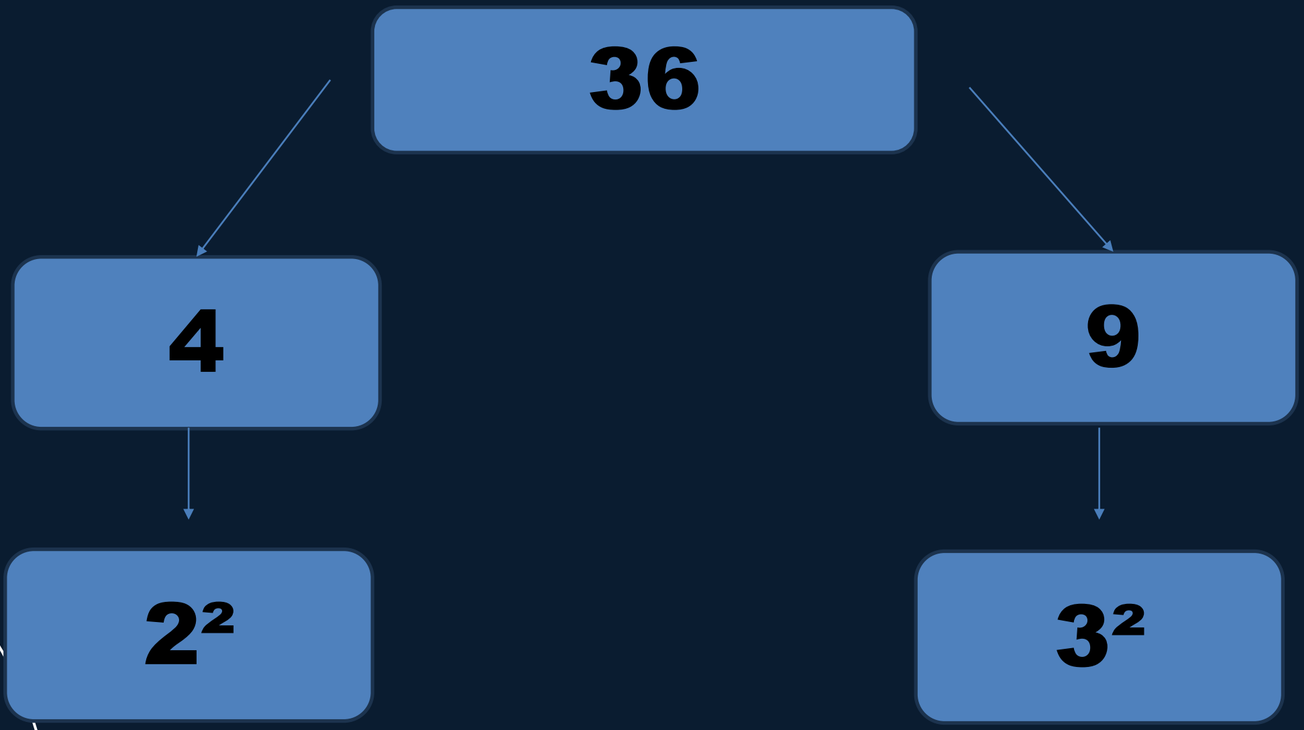
Neihter prime nor Composit

NUMBER SYSTEM

PRIME FACTORIZATION

- **Prime factorization of a number is the representation of the number by its prime factors.**

Example:



NUMBER SYSTEM

PRIME FACTORIZATION

- **Division Method.**
- **Tree Diagram.**
- **Multiplication.**

Formula:

$$N = X^a \times Y^b \times Z^c$$

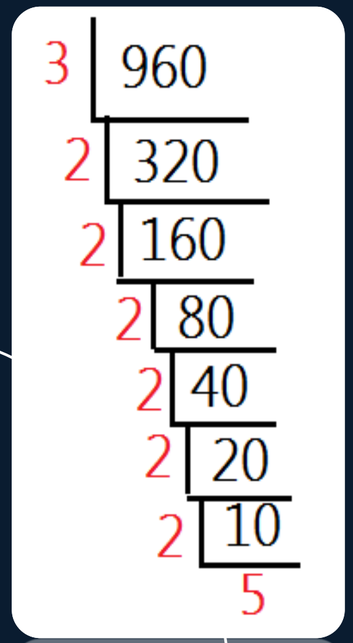
Number of factor:

$$(a+1)(b+1)(c+1)$$

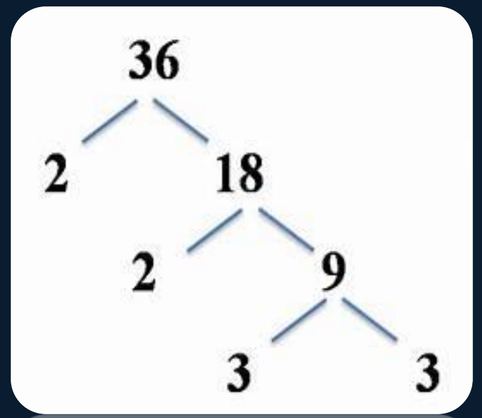
NUMBER SYSTEM

PRIME FACTORIZATION

Division Method.



Tree Diagram.



Multiplication.

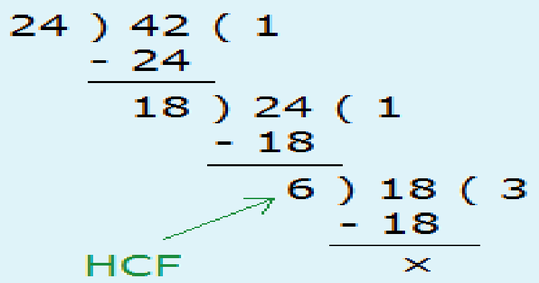
$$1600 = 2\times800 = 2\times2\times400 = 2^2\times2\times200$$
$$= 2^3\times2\times100 = 2^4\times2\times50$$
$$= 2^6\times5\times5 = 2^6.5^2$$

NUMBER SYSTEM

HIGHEST COMMON FACTOR

HCF

(Highest Common Factor)



- HCF or Highest Common Factor is the greatest number which divides each of the two or more numbers.
- HCF is also called the Greatest Common Measure (GCM) and Greatest Common Divisor(GCD).
- Step 1: Write each number as a product of its prime factors. This method is called here prime factorization.
- Step 2: Now list the common factors of both the numbers
- Step 3: The product of all common prime factors is the HCF (use the lower power of each common factor)

NUMBER SYSTEM

LCM

The LCM of any two is the value that is evenly divisible by the two given numbers.

- **The full form of LCM is Least Common Multiple.**
- **It is also called the Least Common Divisor (LCD).**

Step 1: List the first few multiples of each number.

Step 2: Circle the common multiples.

Step 3: The lowest circled number is the LCM.

LCM of 6, 12 and 18

2	6	12	18
2	3	6	9
3	3	3	9
3	1	1	3
	1	1	1

LCM = 2 X 2 X 3 X 3

LCM = 36

THANK YOU!