

MATHS MICRO-PROJECT

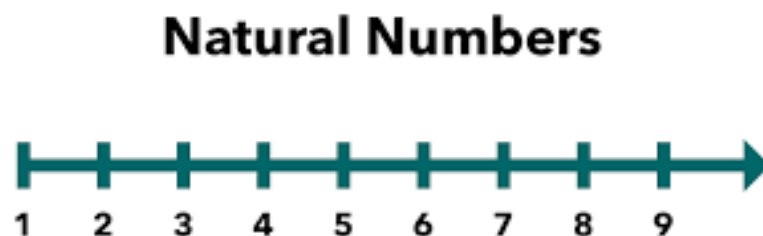
Foundation of mathematics for an engineer

Number system

- * Natural numbers
- * Whole numbers
- * Integers
- * Fractions
- * Rational numbers
- * Irrational numbers
- * Real numbers

1. Natural numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9,

Example:



A natural number is an integer greater than 0. Natural numbers begin at 1 and increment to infinity: 1, 2, 3, 4, 5, etc. Natural numbers are also called "counting numbers" because they are used for counting. ... In computer science, natural numbers are commonly used when incrementing values.

2. Whole numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9,

Example:

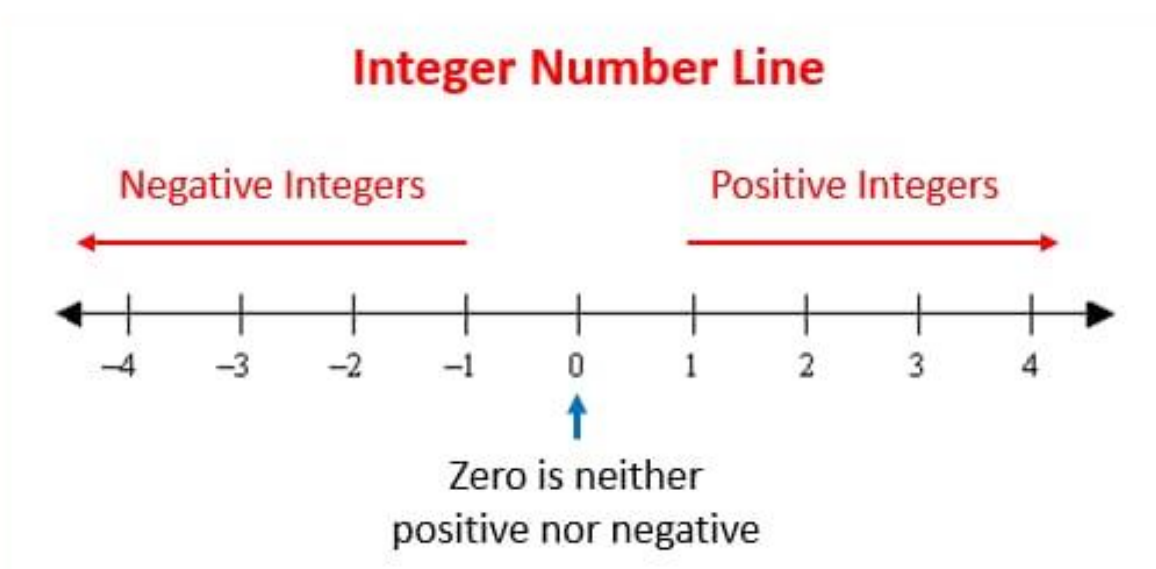
Whole Numbers



Whole numbers are a set of numbers including all positive integers and 0. Whole numbers are a part of real numbers that do not include fractions, decimals, or negative numbers. Counting numbers are also considered as whole numbers.

3. Integers: $-4, -3, -2, -1, 0, 1, 2, 3, 4, \dots$

Example:



An integer is a whole number (not a fraction) that can be positive, negative, or zero. Therefore, the numbers 10, 0, -25, and 5,148 are all integers. Unlike floating point numbers,

integers cannot have decimal places. Integers are a commonly used data type in computer programming.

4. Fractions: $1/2$, $3/7$, $8/3$

Example:

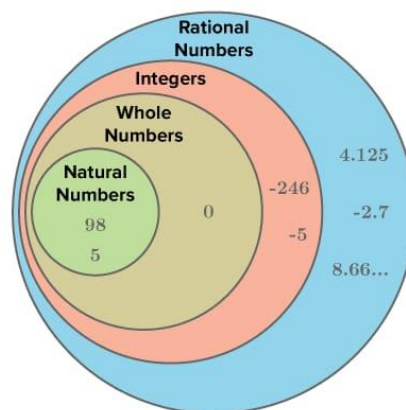
$$\frac{6}{4} \quad \frac{7}{5} \quad \frac{9}{4}$$

$$\frac{10}{7}$$

fraction, In arithmetic, a number expressed as a quotient, in which a numerator is divided by a denominator. In a simple fraction, both are integers. A complex fraction has a fraction in the numerator or denominator. In a proper fraction, the numerator is less than the denominator.

5. Rational numbers: $-2/5$, 0.54 , $1/5$, $13/4$,.....

Example



A rational number is a number that is expressed as the ratio of two integers, where the denominator should not be equal to zero, whereas an irrational number cannot be expressed in the form of fractions. Rational numbers are terminating decimals but irrational numbers are non-terminating.

6. Irrational numbers: $\sqrt{2}$, $\sqrt{3}$, $\sqrt{434343}$, π ,

Example:

$$\pi = 3.1415926535...$$

$$e = 2.7182818284...$$

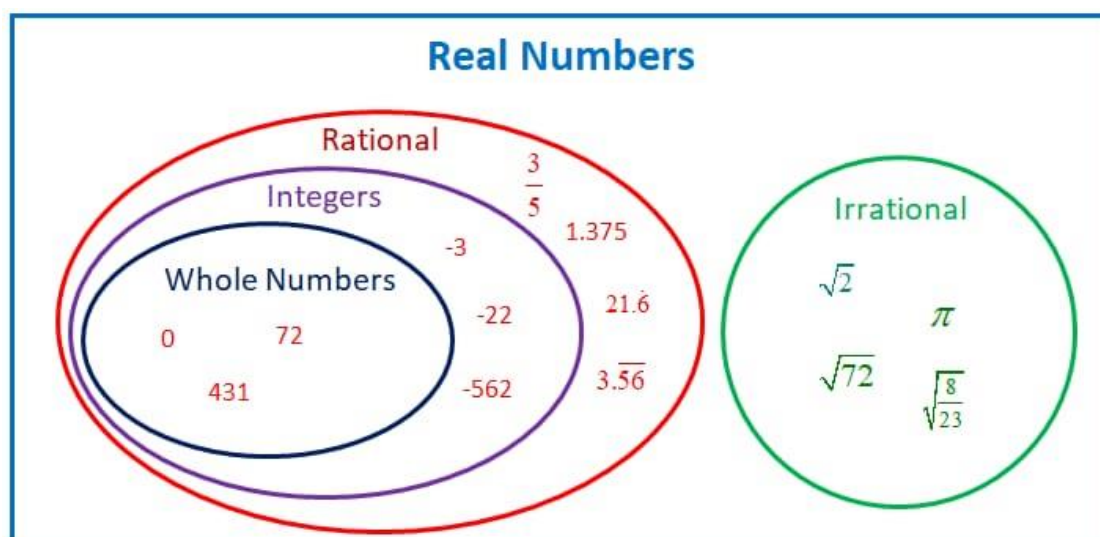
$$\sqrt{2} = 1.4142135623...$$

irrational number, any real number that cannot be expressed as the quotient of two integers. For example, there is no number among integers and fractions that equals the square root of 2. ... Each irrational number can be expressed as an infinite decimal expansion with no regularly repeating digit or group of digits.

7. Real numbers: -2 , 0 , 2.4 , $1/3$, π ,

Real numbers are simply the combination of rational and irrational numbers, in the number system. In general, all the arithmetic operations can be performed on these numbers and they can be represented in the number line, also.

Example:



BEST OF LUCK