

# Numbers

## Number

*and label. The most basic examples are the natural numbers 1, 2, 3, 4, and so forth. Individual numbers can be represented in language with number words*

A number is a mathematical object used to count, measure, and label. The most basic examples are the natural numbers 1, 2, 3, 4, and so forth. Individual numbers can be represented in language with number words or by dedicated symbols called numerals; for example, "five" is a number word and "5" is the corresponding numeral. As only a relatively small number of symbols can be memorized, basic numerals are commonly arranged in a numeral system, which is an organized way to represent any number. The most common numeral system is the Hindu–Arabic numeral system, which allows for the representation of any non-negative integer using a combination of ten fundamental numeric symbols, called digits. In addition to their use in counting and measuring, numerals are often used for labels (as with telephone numbers), for ordering (as with serial numbers), and for codes (as with ISBNs). In common usage, a numeral is not clearly distinguished from the number that it represents.

In mathematics, the notion of number has been extended over the centuries to include zero (0), negative numbers, rational numbers such as one half

(

1

2

)

$\left(\frac{1}{2}\right)$

, real numbers such as the square root of 2

(

2

)

$\left(\sqrt{2}\right)$

and  $i$ , and complex numbers which extend the real numbers with a square root of  $-1$  (and its combinations with real numbers by adding or subtracting its multiples). Calculations with numbers are done with arithmetical operations, the most familiar being addition, subtraction, multiplication, division, and exponentiation. Their study or usage is called arithmetic, a term which may also refer to number theory, the study of the properties of numbers.

Besides their practical uses, numbers have cultural significance throughout the world. For example, in Western society, the number 13 is often regarded as unlucky, and "a million" may signify "a lot" rather than an exact quantity. Though it is now regarded as pseudoscience, belief in a mystical significance of numbers, known as numerology, permeated ancient and medieval thought. Numerology heavily influenced the development of Greek mathematics, stimulating the investigation of many problems in number theory which

are still of interest today.

During the 19th century, mathematicians began to develop many different abstractions which share certain properties of numbers, and may be seen as extending the concept. Among the first were the hypercomplex numbers, which consist of various extensions or modifications of the complex number system. In modern mathematics, number systems are considered important special examples of more general algebraic structures such as rings and fields, and the application of the term "number" is a matter of convention, without fundamental significance.

## RSA numbers

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In mathematics, the RSA numbers are a set of large semiprimes (numbers with exactly two prime factors) that were part of the RSA Factoring Challenge. The challenge was to find the prime factors of each number. It was created by RSA Laboratories in March 1991 to encourage research into computational number theory and the practical difficulty of factoring large integers. The challenge was ended in 2007.

RSA Laboratories (which is an initialism of the creators of the technique; Rivest, Shamir and Adleman) published a number of semiprimes with 100 to 617 decimal digits. Cash prizes of varying size, up to US\$200,000 (and prizes up to \$20,000 awarded), were offered for factorization of some of them. The smallest RSA number was factored in a few days. Most of the numbers have still not been factored and many of them are expected to remain unfactored for many years to come. As of February 2020, the smallest 23 of the 54 listed numbers have been factored.

While the RSA challenge officially ended in 2007, people are still attempting to find the factorizations. According to RSA Laboratories, "Now that the industry has a considerably more advanced understanding of the cryptanalytic strength of common symmetric-key and public-key algorithms, these challenges are no longer active." Some of the smaller prizes had been awarded at the time. The remaining prizes were retracted.

The first RSA numbers generated, from RSA-100 to RSA-500, were labeled according to their number of decimal digits. Later, beginning with RSA-576, binary digits are counted instead. An exception to this is RSA-617, which was created before the change in the numbering scheme. The numbers are listed in increasing order below.

Note: until work on this article is finished, please check both the table and the list, since they include different values and different information.

## List of TCP and UDP port numbers

*This is a list of TCP and UDP port numbers used by protocols for operation of network applications. The Transmission Control Protocol (TCP) and the User*

This is a list of TCP and UDP port numbers used by protocols for operation of network applications. The Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP) only need one port for bidirectional traffic. TCP usually uses port numbers that match the services of the corresponding UDP implementations, if they exist, and vice versa.

The Internet Assigned Numbers Authority (IANA) is responsible for maintaining the official assignments of port numbers for specific uses, However, many unofficial uses of both well-known and registered port numbers occur in practice. Similarly, many of the official assignments refer to protocols that were never or are no longer in common use. This article lists port numbers and their associated protocols that have experienced significant uptake.

## List of numbers

*notable numbers and articles about notable numbers. The list does not contain all numbers in existence as most of the number sets are infinite. Numbers may*

This is a list of notable numbers and articles about notable numbers. The list does not contain all numbers in existence as most of the number sets are infinite. Numbers may be included in the list based on their mathematical, historical or cultural notability, but all numbers have qualities that could arguably make them notable. Even the smallest "uninteresting" number is paradoxically interesting for that very property. This is known as the interesting number paradox.

The definition of what is classed as a number is rather diffuse and based on historical distinctions. For example, the pair of numbers (3,4) is commonly regarded as a number when it is in the form of a complex number ( $3+4i$ ), but not when it is in the form of a vector (3,4). This list will also be categorized with the standard convention of types of numbers.

This list focuses on numbers as mathematical objects and is not a list of numerals, which are linguistic devices: nouns, adjectives, or adverbs that designate numbers. The distinction is drawn between the number five (an abstract object equal to  $2+3$ ), and the numeral five (the noun referring to the number).

## Telephone numbers in the United Kingdom

*assigning telephone numbers to subscriber stations. Telephone numbers are of variable length. Local numbers are supported from landlines. Numbers can be dialled*

In the United Kingdom and the Crown Dependencies, telephone numbers are administered by the Office of Communications (Ofcom). For this purpose, Ofcom established a telephone numbering plan, known as the National Telephone Numbering Plan, which is the system for assigning telephone numbers to subscriber stations.

Telephone numbers are of variable length. Local numbers are supported from landlines. Numbers can be dialled with a '0'-lead prefix that denotes either a geographical region or another service. Mobile phone numbers have distinct prefixes that are not geographic, and are portable between providers.

## Natural number

*the natural numbers are the numbers 0, 1, 2, 3, and so on, possibly excluding 0. Some start counting with 0, defining the natural numbers as the non-negative*

In mathematics, the natural numbers are the numbers 0, 1, 2, 3, and so on, possibly excluding 0. Some start counting with 0, defining the natural numbers as the non-negative integers 0, 1, 2, 3, ..., while others start with 1, defining them as the positive integers 1, 2, 3, ... . Some authors acknowledge both definitions whenever convenient. Sometimes, the whole numbers are the natural numbers as well as zero. In other cases, the whole numbers refer to all of the integers, including negative integers. The counting numbers are another term for the natural numbers, particularly in primary education, and are ambiguous as well although typically start at 1.

The natural numbers are used for counting things, like "there are six coins on the table", in which case they are called cardinal numbers. They are also used to put things in order, like "this is the third largest city in the country", which are called ordinal numbers. Natural numbers are also used as labels, like jersey numbers on a sports team, where they serve as nominal numbers and do not have mathematical properties.

The natural numbers form a set, commonly symbolized as a bold N or blackboard bold  $\mathbb{N}$  ?

N

$\mathbb{N}$

?. Many other number sets are built from the natural numbers. For example, the integers are made by adding 0 and negative numbers. The rational numbers add fractions, and the real numbers add all infinite decimals. Complex numbers add the square root of  $-1$ . This chain of extensions canonically embeds the natural numbers in the other number systems.

Natural numbers are studied in different areas of math. Number theory looks at things like how numbers divide evenly (divisibility), or how prime numbers are spread out. Combinatorics studies counting and arranging numbered objects, such as partitions and enumerations.

Numbers game

*The numbers game, also known as the numbers racket, the Italian lottery, Mafia lottery, or the daily number, is a form of illegal gambling or illegal*

The numbers game, also known as the numbers racket, the Italian lottery, Mafia lottery, or the daily number, is a form of illegal gambling or illegal lottery played mostly in poor and working-class neighborhoods in the United States, wherein a bettor attempts to pick three digits to match those that will be randomly drawn the following day. For many years the "number" has been the last three digits of "the handle", the amount race track bettors placed on race day at a major racetrack, published in racing journals and major newspapers in New York. In the loosest sense of the word "racket", the numbers game is a common racket or ongoing criminal scheme among organized crime groups, especially in the United States.

Gamblers place bets with a bookmaker ("bookie") at a tavern, bar, barber shop, social club, or any other semi-private place that acts as an illegal betting parlor. Runners carry the money and betting slips between the betting parlors and the headquarters, called a numbers bank. Closely related is policy, known as the policy racket, or the policy game. Policy was a popular game, particularly in African-American communities, in cities across the United States such as Chicago and New York City (Harlem specifically). The name "policy" is based on the similarity to cheap insurance, which is also a gamble on the future.

Numbers station

*followed by a coded transmission of five numbers: 0–2–5–8–8. Problems playing this file? See media help. A numbers station is a shortwave radio station characterized*

A numbers station is a shortwave radio station characterized by broadcasts of formatted numbers, which are believed to be addressed to intelligence officers operating in foreign countries. Most identified stations use speech synthesis to vocalize numbers, although digital modes such as phase-shift keying and frequency-shift keying, as well as Morse code transmissions, are not uncommon. Most stations have set time schedules or schedule patterns; however, some appear to have no discernible pattern and broadcast at random times. Stations may have set frequencies in the high-frequency band.

Numbers stations have been reported since at least the start of World War I and continue in use today. Amongst amateur radio enthusiasts, there is an interest in monitoring and classifying numbers stations, with many being given nicknames to represent their quirks and features or origins.

Real number

*distinguishes real numbers from imaginary numbers such as the square roots of  $-1$ . The real numbers include the rational numbers, such as the integer*

In mathematics, a real number is a number that can be used to measure a continuous one-dimensional quantity such as a length, duration or temperature. Here, continuous means that pairs of values can have arbitrarily small differences. Every real number can be almost uniquely represented by an infinite decimal expansion.

The real numbers are fundamental in calculus (and in many other branches of mathematics), in particular by their role in the classical definitions of limits, continuity and derivatives.

The set of real numbers, sometimes called "the reals", is traditionally denoted by a bold R, often using blackboard bold,  $\mathbb{R}$ .

$\mathbb{R}$

$\{\displaystyle \mathbb{R}\}$

?

The adjective real, used in the 17th century by René Descartes, distinguishes real numbers from imaginary numbers such as the square roots of  $-1$ .

The real numbers include the rational numbers, such as the integer  $5$  and the fraction  $4/3$ . The rest of the real numbers are called irrational numbers. Some irrational numbers (as well as all the rationals) are the root of a polynomial with integer coefficients, such as the square root  $\sqrt{2} = 1.414\dots$ ; these are called algebraic numbers. There are also real numbers which are not, such as  $e = 3.1415\dots$ ; these are called transcendental numbers.

Real numbers can be thought of as all points on a line called the number line or real line, where the points corresponding to integers ( $\dots, -2, -1, 0, 1, 2, \dots$ ) are equally spaced.

The informal descriptions above of the real numbers are not sufficient for ensuring the correctness of proofs of theorems involving real numbers. The realization that a better definition was needed, and the elaboration of such a definition was a major development of 19th-century mathematics and is the foundation of real analysis, the study of real functions and real-valued sequences. A current axiomatic definition is that real numbers form the unique (up to an isomorphism) Dedekind-complete ordered field. Other common definitions of real numbers include equivalence classes of Cauchy sequences (of rational numbers), Dedekind cuts, and infinite decimal representations. All these definitions satisfy the axiomatic definition and are thus equivalent.

Telephone numbers in Pakistan

*Telephone numbers in Pakistan are ten digits long. Landline numbers and mobile numbers have different structures. Geographically fixed landline are prefixed*

Telephone numbers in Pakistan are ten digits long. Landline numbers and mobile numbers have different structures. Geographically fixed landline are prefixed by an area code which varies in length depending on the significance of the place. Mobile numbers are prefixed followed by a two-digit code indicating the telephone operator. The international country code for Pakistan is +92.

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