

50 As A Decimal

Decimal

(decimal fractions) of the Hindu–Arabic numeral system. The way of denoting numbers in the decimal system is often referred to as decimal notation. A decimal - The decimal numeral system (also called the base-ten positional numeral system and denary or decanary) is the standard system for denoting integer and non-integer numbers. It is the extension to non-integer numbers (decimal fractions) of the Hindu–Arabic numeral system. The way of denoting numbers in the decimal system is often referred to as decimal notation.

A decimal numeral (also often just decimal or, less correctly, decimal number), refers generally to the notation of a number in the decimal numeral system. Decimals may sometimes be identified by a decimal separator (usually "." or "," as in 25.9703 or 3,1415).

Decimal may also refer specifically to the digits after the decimal separator, such as in "3.14 is the approximation of π to two decimals".

The numbers that may be represented exactly by a decimal of finite length are the decimal fractions. That is, fractions of the form $a/10^n$, where a is an integer, and n is a non-negative integer. Decimal fractions also result from the addition of an integer and a fractional part; the resulting sum sometimes is called a fractional number.

Decimals are commonly used to approximate real numbers. By increasing the number of digits after the decimal separator, one can make the approximation errors as small as one wants, when one has a method for computing the new digits. In the sciences, the number of decimal places given generally gives an indication of the precision to which a quantity is known; for example, if a mass is given as 1.32 milligrams, it usually means there is reasonable confidence that the true mass is somewhere between 1.315 milligrams and 1.325 milligrams, whereas if it is given as 1.320 milligrams, then it is likely between 1.3195 and 1.3205 milligrams. The same holds in pure mathematics; for example, if one computes the square root of 22 to two digits past the decimal point, the answer is 4.69, whereas computing it to three digits, the answer is 4.690. The extra 0 at the end is meaningful, in spite of the fact that 4.69 and 4.690 are the same real number.

In principle, the decimal expansion of any real number can be carried out as far as desired past the decimal point. If the expansion reaches a point where all remaining digits are zero, then the remainder can be omitted, and such an expansion is called a terminating decimal. A repeating decimal is an infinite decimal that, after some place, repeats indefinitely the same sequence of digits (e.g., $5.123144144144144\dots = 5.123144$). An infinite decimal represents a rational number, the quotient of two integers, if and only if it is a repeating decimal or has a finite number of non-zero digits.

Decimal time

10 decimal hours, each decimal hour into 100 decimal minutes and each decimal minute into 100 decimal seconds (100,000 decimal seconds per day), as opposed - Decimal time is the representation of the time of day using units which are decimally related. This term is often used specifically to refer to the French Republican calendar time system used in France from 1794 to 1800, during the French Revolution, which divided the day into 10 decimal hours, each decimal hour into 100 decimal minutes and each decimal minute into 100 decimal seconds (100,000 decimal seconds per day), as opposed to the more familiar standard time,

which divides the day into 24 hours, each hour into 60 minutes and each minute into 60 seconds (86,400 SI seconds per day).

The main advantage of a decimal time system is that, since the base used to divide the time is the same as the one used to represent it, the representation of hours, minutes and seconds can be handled as a unified value. Therefore, it becomes simpler to interpret a timestamp and to perform conversions. For instance, 1h23m45s is 1 decimal hour, 23 decimal minutes, and 45 decimal seconds, or 1.2345 decimal hours, or 123.45 decimal minutes or 12345 decimal seconds; 3 hours is 300 minutes or 30,000 seconds.

This property also makes it straightforward to represent a timestamp as a fractional day, so that 2025-08-27.54321 can be interpreted as five decimal hours, 43 decimal minutes and 21 decimal seconds after the start of that day, or a fraction of 0.54321 (54.321%) through that day (which is shortly after traditional 13:00). It also adjusts well to digital time representation using epochs, in that the internal time representation can be used directly both for computation and for user-facing display.

Repeating decimal

A repeating decimal or recurring decimal is a decimal representation of a number whose digits are eventually periodic (that is, after some place, the same sequence of digits is repeated forever); if this sequence consists only of zeros (that is if there is only a finite number of nonzero digits), the decimal is said to be terminating, and is not considered as repeating.

It can be shown that a number is rational if and only if its decimal representation is repeating or terminating. For example, the decimal representation of $\frac{1}{3}$ becomes periodic just after the decimal point, repeating the single digit "3" forever, i.e. 0.333.... A more complicated example is $\frac{3227}{555}$, whose decimal becomes periodic at the second digit following the decimal point and then repeats the sequence "144" forever, i.e. 5.8144144144.... Another example of this is $\frac{593}{53}$, which becomes periodic after the decimal point, repeating the 13-digit pattern "1886792452830" forever, i.e. 11.18867924528301886792452830....

The infinitely repeated digit sequence is called the repetend or reptend. If the repetend is a zero, this decimal representation is called a terminating decimal rather than a repeating decimal, since the zeros can be omitted and the decimal terminates before these zeros. Every terminating decimal representation can be written as a decimal fraction, a fraction whose denominator is a power of 10 (e.g. $1.585 = \frac{1585}{1000}$); it may also be written as a ratio of the form $\frac{k}{2^n \cdot 5^m}$ (e.g. $1.585 = \frac{317}{2^3 \cdot 5^2}$). However, every number with a terminating decimal representation also trivially has a second, alternative representation as a repeating decimal whose repetend is the digit "9". This is obtained by decreasing the final (rightmost) non-zero digit by one and appending a repetend of 9. Two examples of this are $1.000... = 0.999...$ and $1.585000... = 1.584999...$ (This type of repeating decimal can be obtained by long division if one uses a modified form of the usual division algorithm.)

Any number that cannot be expressed as a ratio of two integers is said to be irrational. Their decimal representation neither terminates nor infinitely repeats, but extends forever without repetition (see § Every rational number is either a terminating or repeating decimal). Examples of such irrational numbers are $\sqrt{2}$ and π .

Decimal Day

Decimal Day (Irish: Lá Deachúil) in the United Kingdom and in Ireland was Monday 15 February 1971, the day on which each country decimalised its respective - Decimal Day (Irish: Lá Deachúil) in the United Kingdom and in Ireland was Monday 15 February 1971, the day on which each country decimalised its respective £sd currency of pounds, shillings, and pence.

Before this date, both the British pound sterling and the Irish pound (symbol "£") were subdivided into 20 shillings, each of 12 (old) pence, a total of 240 pence. With decimalisation, the pound kept its old value and name in each currency, but the shilling was abolished, and the pound was divided into 100 new pence (abbreviated to "p"). In the UK, the new coins initially featured the word "new", but in due course this was dropped. Each new penny was worth 2.4 old pence ("d.") in each currency.

Coins of half a new penny were introduced in the UK and in Ireland to maintain the approximate granularity of the old penny, but these were dropped in the UK in 1984 and in Ireland on 1 January 1987 as inflation reduced their value. An old value of 7 pounds, 10 shillings, and sixpence, abbreviated £7 10/6 or £7.10s.6d, became £7.52½p. Amounts with a number of old pence which was not 0 or 6 did not convert exactly into coins of new pence.

Binary-coded decimal

electronic systems, binary-coded decimal (BCD) is a class of binary encodings of decimal numbers where each digit is represented by a fixed number of bits, usually - In computing and electronic systems, binary-coded decimal (BCD) is a class of binary encodings of decimal numbers where each digit is represented by a fixed number of bits, usually four or eight. Sometimes, special bit patterns are used for a sign or other indications (e.g. error or overflow).

In byte-oriented systems (i.e. most modern computers), the term unpacked BCD usually implies a full byte for each digit (often including a sign), whereas packed BCD typically encodes two digits within a single byte by taking advantage of the fact that four bits are enough to represent the range 0 to 9. The precise four-bit encoding, however, may vary for technical reasons (e.g. Excess-3).

The ten states representing a BCD digit are sometimes called tetrades (the nibble typically needed to hold them is also known as a tetrad) while the unused, don't care-states are named pseudo-tetrad(e)s[de], pseudo-decimals, or pseudo-decimal digits.

BCD's main virtue, in comparison to binary positional systems, is its more accurate representation and rounding of decimal quantities, as well as its ease of conversion into conventional human-readable representations. Its principal drawbacks are a slight increase in the complexity of the circuits needed to implement basic arithmetic as well as slightly less dense storage.

BCD was used in many early decimal computers, and is implemented in the instruction set of machines such as the IBM System/360 series and its descendants, Digital Equipment Corporation's VAX, the Burroughs B1700, and the Motorola 68000-series processors.

BCD per se is not as widely used as in the past, and is unavailable or limited in newer instruction sets (e.g., ARM; x86 in long mode). However, decimal fixed-point and decimal floating-point formats are still important and continue to be used in financial, commercial, and industrial computing, where the subtle conversion and fractional rounding errors that are inherent in binary floating point formats cannot be tolerated.

50 cents

50 cents is a coinage value in many systems using decimal currencies. Examples include: Australian fifty-cent coin 50-cent piece (Canadian coin) 50 euro - 50 cents is a coinage value in many systems using decimal currencies.

Examples include:

Australian fifty-cent coin

50-cent piece (Canadian coin)

50 euro cent coin

Half dollar (United States coin)

Half guilder coin (Netherlands)

Hong Kong fifty-cent coin

Australian dollar

market and as of Q1 2024^[ref] the sixth most-held reserve currency in global reserves. The Australian dollar was introduced as a decimal currency on - The Australian dollar (sign: \$; code: AUD; also abbreviated A\$ or sometimes AU\$ to distinguish it from other dollar-denominated currencies; and also referred to as the dollar or Aussie dollar) is the official currency and legal tender of Australia, including all of its external territories, and three independent sovereign Pacific Island states: Kiribati, Nauru, and Tuvalu. In April 2022, it was the sixth most-traded currency in the foreign exchange market and as of Q1 2024 the sixth most-held reserve currency in global reserves.

The Australian dollar was introduced as a decimal currency on 14 February 1966 to replace the non-decimal Australian pound, with the conversion rate of two dollars to the pound (£A1 = A\$2). It is subdivided into 100 cents. The \$ symbol precedes the amount. On the introduction of the currency, the \$ symbol was intended to have two strokes, but the version with one stroke has also always been acceptable.

In 2023, there were A\$4.4 billion in coins and A\$101.3 billion in notes of Australian currency in circulation, or around A\$6,700 per person in Australia, which includes cash reserves held by the banking system and cash in circulation in other countries or held as a foreign exchange reserve.

50 Cent (disambiguation)

Chinese Communist Party 50 CENT, a song by Dean Blunt from the album Black Metal 50 cents, coins valued at 50 cents in decimal currency systems This disambiguation - 50 Cent (born 1975) is an American rapper.

50 Cent may also refer to:

Kelvin Martin (1964–1987), criminal from the Bronx, New York known as 50 Cent

50 Cent Party, groups of Chinese netizens allegedly paid by the Chinese government to promote the policies of the Chinese Communist Party

50 CENT, a song by Dean Blunt from the album Black Metal

Fixed-point arithmetic

expressed in the same number base as the integer part, but using negative powers of the base b . The most common variants are decimal (base 10) and binary (base 2). In computing, fixed-point is a method of representing fractional (non-integer) numbers by storing a fixed number of digits of their fractional part. Dollar amounts, for example, are often stored with exactly two fractional digits, representing the cents ($1/100$ of dollar). More generally, the term may refer to representing fractional values as integer multiples of some fixed small unit, e.g. a fractional amount of hours as an integer multiple of ten-minute intervals. Fixed-point number representation is often contrasted to the more complicated and computationally demanding floating-point representation.

In the fixed-point representation, the fraction is often expressed in the same number base as the integer part, but using negative powers of the base b . The most common variants are decimal (base 10) and binary (base 2). The latter is commonly known also as binary scaling. Thus, if n fraction digits are stored, the value will always be an integer multiple of b^{-n} . Fixed-point representation can also be used to omit the low-order digits of integer values, e.g. when representing large dollar values as multiples of \$1000.

When decimal fixed-point numbers are displayed for human reading, the fraction digits are usually separated from those of the integer part by a radix character (usually "." in English, but "," or some other symbol in many other languages). Internally, however, there is no separation, and the distinction between the two groups of digits is defined only by the programs that handle such numbers.

Fixed-point representation was the norm in mechanical calculators. Since most modern processors have a fast floating-point unit (FPU), fixed-point representations in processor-based implementations are now used only in special situations, such as in low-cost embedded microprocessors and microcontrollers; in applications that demand high speed or low power consumption or small chip area, like image, video, and digital signal processing; or when their use is more natural for the problem. Examples of the latter are accounting of dollar amounts, when fractions of cents must be rounded to whole cents in strictly prescribed ways; and the evaluation of functions by table lookup, or any application where rational numbers need to be represented without rounding errors (which fixed-point does but floating-point cannot). Fixed-point representation is still the norm for field-programmable gate array (FPGA) implementations, as floating-point support in an FPGA requires significantly more resources than fixed-point support.

Banknotes of the Australian dollar

February 1966, when Australia changed to decimal currency and replaced the pound with the dollar. This currency was a lot easier for calculating compared to - The notes of the Australian dollar were first issued by the Reserve Bank of Australia on 14 February 1966, when Australia changed to decimal currency and replaced the pound with the dollar. This currency was a lot easier for calculating compared to the previous Australian pound worth 20 shillings or 240 pence.

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