# 1 X

X-1

*X-1 may refer to: Bell X-1, the first aircraft to exceed the speed of sound in controlled level flight Lada X-1, a 1981 Soviet concept MPV McLaren X-1*

X-1 may refer to:

Natural logarithm

*{dx}{x}}} d v = d x ? v = x {\displaystyle dv=dx\Rightarrow v=x} then: ? ln ? x d x = x ln ? x ? ? x x d x = x ln ? x ? ? 1 d x = x ln ? x ? x + C {\displaystyle*

The natural logarithm of a number is its logarithm to the base of the mathematical constant e, which is an irrational and transcendental number approximately equal to 2.718281828459. The natural logarithm of x is generally written as ln x, loge x, or sometimes, if the base e is implicit, simply log x. Parentheses are sometimes added for clarity, giving ln(x), loge(x), or log(x). This is done particularly when the argument to the logarithm is not a single symbol, so as to prevent ambiguity.

The natural logarithm of x is the power to which e would have to be raised to equal x. For example, ln 7.5 is 2.0149..., because e2.0149... = 7.5. The natural logarithm of e itself, ln e, is 1, because e1 = e, while the natural logarithm of 1 is 0, since e0 = 1.

The natural logarithm can be defined for any positive real number a as the area under the curve y = 1/x from 1 to a (with the area being negative when 0 < a < 1). The simplicity of this definition, which is matched in many other formulas involving the natural logarithm, leads to the term "natural". The definition of the natural logarithm can then be extended to give logarithm values for negative numbers and for all non-zero complex numbers, although this leads to a multi-valued function: see complex logarithm for more.

The natural logarithm function, if considered as a real-valued function of a positive real variable, is the inverse function of the exponential function, leading to the identities:

e

ln

?

x

=

x

if

x

?

R

$+$

$\ln$

$?$

$e$

$x$

$=$

$x$

if

$x$

$?$

$R$

$${\displaystyle {\begin{aligned}e^{\ln x}&=x\qquad {\text{ if }}x\in \mathbb {R} _{+}\\\ln e^{x}&=x\qquad {\text{ if }}x\in \mathbb {R} \end{aligned}}}$$

Like all logarithms, the natural logarithm maps multiplication of positive numbers into addition:

$\ln$

$?$

$($

$x$

$?$

$y$

$)$

$=$

$\ln$

$?$

$x$

$+$

$\ln$

$?$

$y$

.

$$\ln(x\cdot y)=\ln x+\ln y~.$$

Logarithms can be defined for any positive base other than 1, not only e. However, logarithms in other bases differ only by a constant multiplier from the natural logarithm, and can be defined in terms of the latter,

log

b

?

x

=

ln

?

x

/

ln

?

b

=

ln

?

x

?

log

b

?

e

$$\log_{b}x=\ln x/\ln b=\ln x\cdot \log_{b}e$$

.

Logarithms are useful for solving equations in which the unknown appears as the exponent of some other quantity. For example, logarithms are used to solve for the half-life, decay constant, or unknown time in exponential decay problems. They are important in many branches of mathematics and scientific disciplines,

and are used to solve problems involving compound interest.

## Bell X-1

*The Bell X-1 (Bell Model 44) is a rocket engine–powered aircraft, designated originally as the XS-1, and was a joint National Advisory Committee for Aeronautics–U*

The Bell X-1 (Bell Model 44) is a rocket engine–powered aircraft, designated originally as the XS-1, and was a joint National Advisory Committee for Aeronautics–U.S. Army Air Forces–U.S. Air Force supersonic research project built by Bell Aircraft. Conceived during 1944 and designed and built in 1945, it achieved a speed of nearly 1,000 miles per hour (1,600 km/h; 870 kn) in 1948. A derivative of this same design, the Bell X-1A, having greater fuel capacity and hence longer rocket burning time, exceeded 1,600 miles per hour (2,600 km/h; 1,400 kn) in 1954. The X-1 aircraft #46-062, nicknamed Glamorous Glennis and flown by Chuck Yeager, was the first piloted airplane to exceed the speed of sound in level flight and was the first of the X-planes, a series of American experimental rocket planes (and non-rocket planes) designed for testing new technologies.

## Exponential function

*Euler: e x = 1 + x 1 ? x x + 2 ? 2 x x + 3 ? 3 x x + 4 ? ? {\displaystyle e^{x}=1+{\cfrac {x}{1-{\cfrac {x}{x+2-{\cfrac {2x}{x+3-{\cfrac {3x}{x+4-\ddots*

In mathematics, the exponential function is the unique real function which maps zero to one and has a derivative everywhere equal to its value. The exponential of a variable ?

x

{\displaystyle x}

? is denoted ?

exp

?

x

{\displaystyle \exp x}

? or ?

e

x

{\displaystyle e^{x}}

?, with the two notations used interchangeably. It is called exponential because its argument can be seen as an exponent to which a constant number e ? 2.718, the base, is raised. There are several other definitions of the exponential function, which are all equivalent although being of very different nature.

The exponential function converts sums to products: it maps the additive identity 0 to the multiplicative identity 1, and the exponential of a sum is equal to the product of separate exponentials, ?

exp

$$\exp(x+y)=\exp x\cdot \exp y$$

. Its inverse function, the natural logarithm, $\ln$ or $\log$, converts products to sums:

$$\ln(x\cdot y)$$

=

ln

?

x

+

ln

?

y

{\displaystyle \ln(x\cdot y)=\ln x+\ln y}

?.

The exponential function is occasionally called the natural exponential function, matching the name natural logarithm, for distinguishing it from some other functions that are also commonly called exponential functions. These functions include the functions of the form ?

f

(

x

)

=

b

x

{\displaystyle f(x)=b^{x}}

?, which is exponentiation with a fixed base ?

b

{\displaystyle b}

?. More generally, and especially in applications, functions of the general form ?

f

(

x

)

=

a

b

x

{\displaystyle f(x)=ab^{x}}

? are also called exponential functions. They grow or decay exponentially in that the rate that ?

f

(

x

)

{\displaystyle f(x)}

? changes when ?

x

{\displaystyle x}

? is increased is proportional to the current value of ?

f

(

x

)

{\displaystyle f(x)}

?.

The exponential function can be generalized to accept complex numbers as arguments. This reveals relations between multiplication of complex numbers, rotations in the complex plane, and trigonometry. Euler's formula ?

exp

?

i

?

=

cos

?

?

+

i

sin

?

?

{\displaystyle \exp i\theta =\cos \theta +i\sin \theta }

? expresses and summarizes these relations.

The exponential function can be even further generalized to accept other types of arguments, such as matrices and elements of Lie algebras.

Cygnus X-1

*Cygnus X-1 (abbreviated Cyg X-1) is a galactic X-ray source in the constellation Cygnus and was the first such source widely accepted to be a black hole*

Cygnus X-1 (abbreviated Cyg X-1) is a galactic X-ray source in the constellation Cygnus and was the first such source widely accepted to be a black hole. It was discovered in 1964 during a rocket flight and is one of the strongest X-ray sources detectable from Earth, producing a peak X-ray flux density of $2.3 \times 10?23$ W/(m2?Hz) ($2.3 \times 103$ jansky). It remains among the most studied astronomical objects in its class. The compact object is now estimated to have a mass about 21.2 times the mass of the Sun and has been shown to be too small to be any known kind of normal star or other likely object besides a black hole. If so, the radius of its event horizon has 300 km "as upper bound to the linear dimension of the source region" of occasional X-ray bursts lasting only for about 1 ms.

Cygnus X-1 is a high-mass X-ray binary system located about 7,000 light-years away, that includes a blue supergiant variable star. The supergiant and black hole are separated by about 0.2 AU, or 20% of the distance from Earth to the Sun. A stellar wind from the star provides material for an accretion disk around the X-ray source. Matter in the inner disk is heated to millions of degrees, generating the observed X-rays. A pair of relativistic jets, arranged perpendicularly to the disk, are carrying part of the energy of the infalling material away into interstellar space.

This system may belong to a stellar association called Cygnus OB3, which would mean that Cygnus X-1 is about 5 million years old and formed from a progenitor star that had more than 40 solar masses. The majority of the star's mass was shed, most likely as a stellar wind. If this star had then exploded as a supernova, the resulting force would most likely have ejected the remnant from the system. Hence the star may have instead collapsed directly into a black hole.

Cygnus X-1 was the subject of a friendly scientific wager between physicists Stephen Hawking and Kip Thorne in 1975, with Hawking—betting that it was not a black hole—hoping to lose. Hawking conceded the bet in 1990 after observational data had strengthened the case that there was indeed a black hole in the system.

Xbox One

*available Holiday 2017. To celebrate the launch of the Xbox One X, a limited-edition 1 TB Xbox One X Project Scorpio edition was made available on November 7*

The Xbox One is a home video game console developed by Microsoft. Announced in May 2013, it is the successor to Xbox 360 and the third console in the Xbox series. It was first released in North America, parts of Europe, Australia, and South America in November 2013 and in Japan, China, and other European countries in September 2014. It is the first Xbox game console to be released in China, specifically in the Shanghai Free-Trade Zone. Microsoft marketed the device as an "all-in-one entertainment system", hence the name "Xbox One". An eighth-generation console, it mainly competed against Sony's PlayStation 4 and Nintendo's Wii U and later the Nintendo Switch.

Moving away from its predecessor's PowerPC-based architecture, the Xbox One marks a shift back to the x86 architecture used in the original Xbox; it features an Accelerated Processing Unit (APU) from AMD built around the x86-64 instruction set. Xbox One's controller was redesigned over the Xbox 360's, with a redesigned body, D-pad, and triggers capable of delivering directional haptic feedback. The console places an increased emphasis on cloud computing, as well as social networking features and the ability to record and share video clips or screenshots from gameplay or livestream directly to streaming services such as Mixer and Twitch. Games can also be played off-console via a local area network on supported Windows 10 devices. The console can play Blu-ray Disc, and overlay live television programming from an existing set-top box or a digital tuner for digital terrestrial television with an enhanced program guide. The console optionally included a redesigned Kinect sensor, marketed as the "Kinect 2.0", providing improved motion tracking and voice recognition.

The Xbox One received positive reviews for its controller design, multimedia features and quieter internals, but criticism was initially given to its user interface. A revised version replaced the original in 2016, called the Xbox One S, which has a smaller form factor and support for HDR10 high-dynamic-range video, as well as support for 4K video playback and upscaling of games from 1080p to 4K. It was praised for its smaller size, its on-screen visual improvements, and its lack of an external power supply, but its regressions such as the lack of a native Kinect port were noted. A high-end model, named Xbox One X, was unveiled in June 2017 and released in November; it features upgraded hardware specifications and support for rendering games at 4K resolution. The system was succeeded by the Xbox Series X and Series S consoles, which launched on November 10, 2020. Production of all Xbox One consoles ceased at the end of that year.

1X

*1X or 1-X may refer to: 1X Band, a musical group from Slovenia 1xBet, also known as &quot;1X&quot;, an online gambling company 1. X. 1905, a piano composition by*

1X or 1-X may refer to:

1X Band, a musical group from Slovenia

1xBet, also known as "1X", an online gambling company

1. X. 1905, a piano composition by Leoš Janá?ek

Saab 9-1X

Alberta Highway 1X; see Alberta Highway 1A

NY 1X; see Hutchinson River Parkway

SSH 1X (WA); see List of former state highways in Washington

CDMA2000 1x; see CDMA2000

1/x; see Multiplicative inverse

1x-EVDO; see Evolution-Data Optimized

Ares 1-X; see Ares I-X

Will 1x, early stage name for will.i.am

1x CD-ROM; see CD-ROM

EH-1X; see Bell UH-1 Iroquois variants

GSC-1X; see GSC bus

Xbox One X

HTC One X smartphone

One-X, 2006 album by Three Days Grace

Single scull in rowing

1X Technologies, an American robotics and artificial intelligence company

1x, a short form given by the community of Roblox for a test account of the name 1x1x1x1, who was believed to be a hacker despite it being a hoax

Scorpius X-1

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Scorpius X-1 is a low-mass X-ray binary located roughly 9,000 light years away in the constellation Scorpius. Scorpius X-1 was the first extrasolar X-ray source discovered, and, aside from the Sun, it is the strongest apparent non-transient source of X-rays in the sky.

Function (mathematics)

*( x ) = x 3 ? 3 x ? 1 {\displaystyle f(x)=x^{3}-3x-1} and f ( x ) = ( x ? 1 ) ( x 3 + 1 ) + 2 x 2 ? 1 {\displaystyle f(x)=(x-1)(x^{3}+1)+2x^{2}-1} are*

In mathematics, a function from a set X to a set Y assigns to each element of X exactly one element of Y. The set X is called the domain of the function and the set Y is called the codomain of the function.

Functions were originally the idealization of how a varying quantity depends on another quantity. For example, the position of a planet is a function of time. Historically, the concept was elaborated with the infinitesimal calculus at the end of the 17th century, and, until the 19th century, the functions that were considered were differentiable (that is, they had a high degree of regularity). The concept of a function was formalized at the end of the 19th century in terms of set theory, and this greatly increased the possible applications of the concept.

A function is often denoted by a letter such as f, g or h. The value of a function f at an element x of its domain (that is, the element of the codomain that is associated with x) is denoted by f(x); for example, the value of f at x = 4 is denoted by f(4). Commonly, a specific function is defined by means of an expression depending on x, such as

f

(

x

)

=

x

2

+

1

;

$$f(x)=x^{2}+1;$$

in this case, some computation, called function evaluation, may be needed for deducing the value of the function at a particular value; for example, if

f

(

x

)

=

x

2

+

1

,

$$f(x)=x^{2}+1,$$

then

f

(

4

)

=

4

2

+

1

=

17.

{\displaystyle f(4)=4^{2}+1=17.}

Given its domain and its codomain, a function is uniquely represented by the set of all pairs (x, f (x)), called the graph of the function, a popular means of illustrating the function. When the domain and the codomain are sets of real numbers, each such pair may be thought of as the Cartesian coordinates of a point in the plane.

Functions are widely used in science, engineering, and in most fields of mathematics. It has been said that functions are "the central objects of investigation" in most fields of mathematics.

The concept of a function has evolved significantly over centuries, from its informal origins in ancient mathematics to its formalization in the 19th century. See History of the function concept for details.

Windows 1.0

*Windows 1.0 is the first major release of Microsoft Windows, a family of graphical operating systems for personal computers developed by Microsoft. It*

Windows 1.0 is the first major release of Microsoft Windows, a family of graphical operating systems for personal computers developed by Microsoft. It was first released to manufacturing in the United States on November 20, 1985, while the European version was released as Windows 1.02 in May 1986.

Its development began after Microsoft co-founder Bill Gates saw a demonstration of a similar software suite, Visi On, at COMDEX in 1982. The operating environment was showcased to the public in November 1983, although it ended up being released two years later. Windows 1.0 runs on MS-DOS, as a 16-bit shell program known as MS-DOS Executive, and it provides an environment which can run graphical programs designed for Windows, as well as existing MS-DOS software. It included multitasking and the use of the mouse, and various built-in programs such as Calculator, Paint, and Notepad. The operating environment does not allow its windows to overlap, and instead, the windows are tiled. Windows 1.0 received four releases numbered 1.01 through 1.04, mainly adding support for newer hardware or additional languages.

The system received lukewarm reviews; critics raised concerns about not fulfilling expectations, its compatibility with very little software, and its performance issues, while it has also received positive responses to Microsoft's early presentations and support from a number of hardware- and software-makers. Its last release was 1.04, and it was succeeded by Windows 2.0, which was released in December 1987.

Microsoft ended its support for Windows 1.0 on December 31, 2001, making it the longest-supported out of all versions of Windows.

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