#### NAME

log, log1, log10, log10f, log10l, log2, log2f, log2l, log1p, log1pf, log1pl - logarithm functions

## LIBRARY

Math Library (libm, -lm)

#### SYNOPSIS

#include <math.h>

double
log(double x);

float
logf(float x);

long double
logl(long double x);

double
log10(double x);

float
log10f(float x);

long double
log10l(long double x);

double
log2(double x);

float
log2f(float x);

long double
log2l(long double x);

double
log1p(double x);

float

**log1pf**(*float x*);

long double
log1pl(long double x);

# DESCRIPTION

The **log**(), **logf**(), and **logl**() functions compute the natural logarithm of *x*.

The log10(), log10f(), and log10l() functions compute the logarithm base 10 of *x*, while log2(), log2f(), and log2l() compute the logarithm base 2 of *x*.

The **log1p**(), **log1pf**(), and **log1pl**() functions compute the natural logarithm of 1 + x. Computing the natural logarithm as log1p(x) is more accurate than computing it as log(1 + x) when x is close to zero.

### **RETURN VALUES**

These functions return the requested logarithm; the logarithm of 1 is +0. An attempt to take the logarithm of +-0 results in a divide-by-zero exception, and -infinity is returned. Otherwise, attempting to take the logarithm of a negative number results in an invalid exception and a return value of NaN.

#### SEE ALSO

exp(3), ilogb(3), math(3), pow(3)

### STANDARDS

The log(), logf(), log1(), log10(), log10f(), log10l(), log2(), log2f(), log2l(), log1p(), log1pf(), and log1pl() functions conform to ISO/IEC 9899:1999 ("ISO C99").

### HISTORY

The **log**() function first appeared in Version 1 AT&T UNIX; **log10**() in Version 7 AT&T UNIX; **log1p**() in 4.3BSD.