



Linux Ubuntu 26.04 Manual Pages on command 'logbl.3'

\$ man logbl.3

logb(3) Library Functions Manual logb(3)

NAME

logb, logbf, logbl - get exponent of a floating-point value

LIBRARY

Math library (libm, -lm)

SYNOPSIS

```
#include <math.h>

double logb(double x);

float logbf(float x);

long double logbl(long double x);
```

Feature Test Macro Requirements for glibc (see feature_test_macros(7)):

```
logb():
    _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
    || _XOPEN_SOURCE >= 500
    || /* Since glibc 2.19: */ _DEFAULT_SOURCE
    || /* glibc <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

```
logbf(), logbl():
    _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
    || /* Since glibc 2.19: */ _DEFAULT_SOURCE
    || /* glibc <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

DESCRIPTION

These functions extract the exponent from the internal floating-point representation of x and return it as a floating-point value. The integer constant FLT_RADIX, defined in

<float.h>, indicates the radix used for the system's floating-point representation. If FLT_RADIX is 2, logb(x) is similar to floor(log2(fabs(x))), except that the latter may give an incorrect integer due to intermediate rounding.

If x is subnormal, logb() returns the exponent x would have if it were normalized.

RETURN VALUE

On success, these functions return the exponent of x.

If x is a NaN, a NaN is returned.

If x is zero, then a pole error occurs, and the functions return -HUGE_VAL, -HUGE_VALF, or -HUGE_VALL, respectively.

If x is negative infinity or positive infinity, then positive infinity is returned.

ERRORS

See math_error(7) for information on how to determine whether an error has occurred when calling these functions.

The following errors can occur:

Pole error: x is 0

A divide-by-zero floating-point exception (FE_DIVBYZERO) is raised.

These functions do not set errno.

ATTRIBUTES

For an explanation of the terms used in this section, see attributes(7).

Interface	Attribute	Value
logb(), logbf(), logbl()	Thread safety	MT-Safe

STANDARDS

C11, POSIX.1-2008.

HISTORY

C99, POSIX.1-2001.

logb() 4.3BSD (see IEEE.3 in the 4.3BSD manual).

SEE ALSO

ilogb(3), log(3)