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Rocky Enterprise Linux 9.2 Manual Pages on command 'log1p.3'

\$ *man log1p.3*

LOG1P(3) Linux Programmer's Manual

LOG1P(3)

NAME

`log1p, log1pf, log1pl` - logarithm of 1 plus argument

SYNOPSIS

```
#include <math.h>

double log1p(double x);

float log1pf(float x);

long double log1pl(long double x);
```

Link with -Im.

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

log1p():

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

`log1pf()`, `log1pl()`:

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

DESCRIPTION

These functions return a value equivalent to

$$\log(1+x)$$

The result is computed in a way that is accurate even if the value of x is near zero.

RETURN VALUE

On success, these functions return the natural logarithm of $(1 + x)$.

If x is a `NaN`, a `NaN` is returned.

If x is positive infinity, positive infinity is returned.

If x is -1 , a pole error occurs, and the functions return $-\text{HUGE_VAL}$, $-\text{HUGE_VALF}$, or $-\text{HUGE_VALL}$, respectively.

If x is less than -1 (including negative infinity), a domain error occurs, and a NaN (not a number) 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:

Domain error: x is less than -1

errno is set to EDOM (but see BUGS). An invalid floating-point exception (FE_INFINITE or FE_INVALID) is raised.

Pole error: x is -1

`errno` is set to `ERANGE` (but see `BUGS`). A divide-by-zero floating-point exception (`FE_DIVBYZERO`) is raised.

ATTRIBUTES

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

?Interface ? Attribute ? Value ?

?log1p(), log1pf(), log1pl() ? Thread safety ? MT-Safe ?

CONFORMING TO

C99, POSIX.1-2001, POSIX.1-2008.

BUGS

Before version 2.22, the glibc implementation did not set `errno` to `EDOM` when a domain error occurred.

Before version 2.22, the glibc implementation did not set `errno` to `ERANGE` when a range error occurred.

SFF ALSO

exp(3), expm1(3), log(3)

COLOPHON

This page is part of release 5.10 of the Linux man-pages project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.

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