



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

**C:\>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 -lm.

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 `-HUGE_VAL`, `-HUGE_VALF`, or `-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_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.

#### SEE ALSO

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

#### COLOPHON

This page is part of release 5.05 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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