



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

\$ man acosh.3

acosh(3) Library Functions Manual acosh(3)

NAME

acosh, acoshf, acoshl - inverse hyperbolic cosine function

LIBRARY

Math library (libm, -lm)

SYNOPSIS

```
#include <math.h>

double acosh(double x);

float acoshf(float x);

long double acoshl(long double x);
```

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

```
acosh():

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

```
acoshf(), acoshl():

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

DESCRIPTION

These functions calculate the inverse hyperbolic cosine of x; that is the value whose hyper-

bolic cosine is x.

RETURN VALUE

On success, these functions return the inverse hyperbolic cosine of x.

If x is a NaN, a NaN is returned.

If x is +1, +0 is returned.

If x is positive infinity, positive infinity is returned.

If x is less than 1, a domain error occurs, and the functions return a NaN.

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. An invalid floating-point exception (FE_INVALID) is raised.

ATTRIBUTES

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

[illegible]

? Interface	? Attribute	? Value	?
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[illegible]

? acosh(), acoshf(), acoshl()	? Thread safety ? MT-Safe ?
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[illegible]

STANDARDS

C11, POSIX.1-2008.

HISTORY

C99, POSIX.1-2001.

The variant returning double also conforms to SVr4, 4.3BSD.

SEE ALSO

 $\operatorname{asinh}(3), \operatorname{atanh}(3), \operatorname{cacosh}(3), \operatorname{cosh}(3), \operatorname{sinh}(3), \operatorname{tanh}(3)$

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