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

\$ man coshf.3

COSH(3) Linux Programmer's Manual

COSH(3)

NAME

cosh, coshf, coshl - hyperbolic cosine function

SYNOPSIS

```
#include <math.h>

double cosh(double x);

float coshf(float x);

long double coshl(long double x);
```

Link with -Im.

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

`coshf()`, `coshl()`:

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

DESCRIPTION

These functions return the hyperbolic cosine of x , which is defined mathematically as:

$$\cosh(x) \equiv (\exp(x) + \exp(-x)) / 2$$

RETURN VALUE

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

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

If x is $+0$ or -0 , 1 is returned.

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

If the result overflows, a range error occurs, and the functions return `+HUGE_VAL`.

+HUGE_VALF, or +HUGE_VALL, respectively.

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:

Range error: result overflow

errno is set to ERANGE. An overflow floating-point exception (FE_OVERFLOW) is raised.

ATTRIBUTES

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

?Interface ? Attribute ? Value ?

?cosh(), coshf(), coshl() ? Thread safety ? MT-Safe ?

CONFORMING TO

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

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

BUGS

In glibc version 2.3.4 and earlier, an overflow floating-point (FE_OVERFLOW) exception is not raised when an overflow occurs.

SEE ALSO

acosh(3), asinh(3), atanh(3), ccos(3), sinh(3), tanh(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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$\cosh(3)$