



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

C:\>man cosh.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 -lm.

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:

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

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).

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?Interface ? Attribute ? Value ?

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?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 5.05 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/>.