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

C:\>man atanh.3

ATANH(3) Linux Programmer's Manual ATANH(3)

NAME

atanh, atanhf, atanhl - inverse hyperbolic tangent function

SYNOPSIS

```
#include <math.h>

double atanh(double x);

float atanhf(float x);

long double atanhl(long double x);
```

Link with -lm.

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

atanh():

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

atanhf(), atanhl():

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

DESCRIPTION

These functions calculate the inverse hyperbolic tangent of x; that is the value whose hyperbolic tangent is x.

RETURN VALUE

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

If x is a NaN, a NaN is returned.

If x is +0 (-0), +0 (-0) is returned.

If x is +1 or -1, a pole error occurs, and the functions return HUGE_VAL, HUGE_VALF, or HUGE_VALL, respectively, with the mathematically correct sign.

If the absolute value of x is greater than 1, a domain error occurs, and a NaN 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 less than -1 or greater than +1

errno is set to EDOM. An invalid floating-point exception (FE_INVALID) is raised.

Pole error: x is +1 or -1

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

ATTRIBUTES

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

??

?Interface ? Attribute ? Value ?

??

?atanh(), atanhf(), atanhl() ? 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 2.9 and earlier, when a pole error occurs, errno as set to EDOM instead of the POSIX-mandated ERANGE. Since version 2.10, glibc does the right thing.

SEE ALSO

acosh(3), asinh(3), catanh(3), cosh(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/.