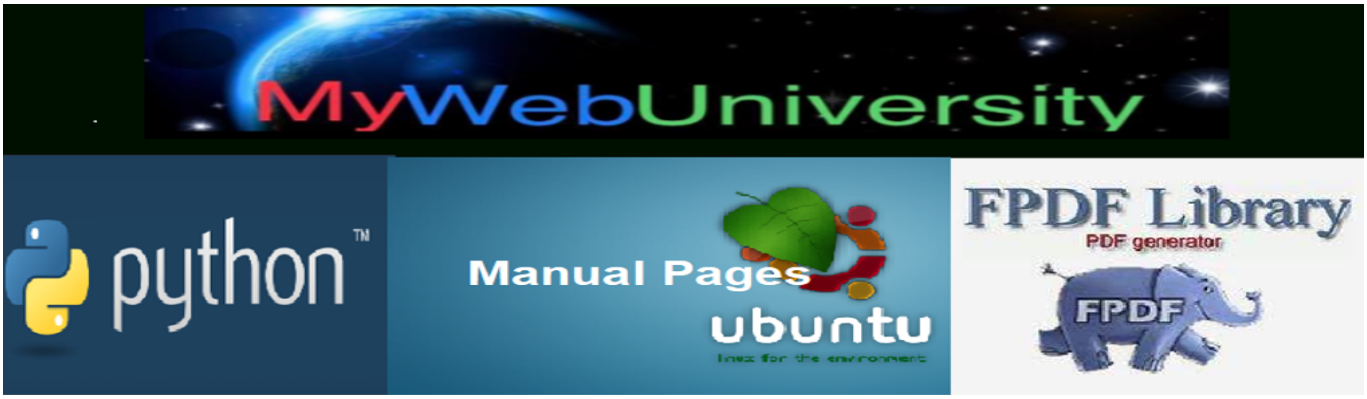




## *Rocky Enterprise Linux 9.2 Manual Pages on command 'atanhf.3'*

***$ man atanhf.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 hy?

perbolic 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 re? turned.

## 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 exception (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 5.10 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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