NAME

tanh, tanhf, tanhl − hyperbolic tangent function

SYNOPSIS

#include <math.h>

double tanh(double *x***);**
float tanhf(float *x***);**
long double tanhl(long double *x***);**

Link with *−lm*.

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

tanhf(), **tanhl**():
_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 tangent of *x*, which is defined mathematically as:

tanh(x) = sinh(x) / cosh(x)

RETURN VALUE

On success, these functions return the 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 positive infinity (negative infinity), +1 (−1) is returned.

ERRORS

No errors occur.

ATTRIBUTES

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

Interface	Attribute	Value
tanh(), **tanhf**(), **tanhl**()	Thread safety	MT-Safe

CONFORMING TO

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

The variant returning *double* also conforms to SVr4, 4.3BSD, C89.

SEE ALSO

acosh(3), **asinh**(3), **atanh**(3), **cosh**(3), **ctanh**(3), **sinh**(3)

COLOPHON

This page is part of release 5.02 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/.