



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

**C:\>man tanh.3**

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

### 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 5.05 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/>.