

NAME

atanh, **atanhf**, **atanhl** - inverse hyperbolic tangent functions

LIBRARY

Math Library (libm, -lm)

SYNOPSIS

```
#include <math.h>
```

double

```
atanh(double x);
```

float

```
atanhf(float x);
```

long double

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

DESCRIPTION

The **atanh**(), **atanhf**(), and **atanhl**() functions compute the inverse hyperbolic tangent of the real argument x . For a discussion of error due to roundoff, see [math\(3\)](#).

RETURN VALUES

These functions return the inverse hyperbolic tangent of x if successful. If the argument has absolute value 1, a divide-by-zero exception is raised and an infinity is returned. If $|x| > 1$, an invalid exception is raised and an NaN is returned.

SEE ALSO

[acosh\(3\)](#), [asinh\(3\)](#), [exp\(3\)](#), [fenv\(3\)](#), [math\(3\)](#)

HISTORY

The **atanh**(), **atanhf**(), and **atanhl**() functions appeared in 4.3BSD, FreeBSD 2.0, and FreeBSD 10.0, respectively.