

NAME

tan, tanf, tanl - tangent function

SYNOPSIS

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

```
double tan(double x);
```

```
float tanf(float x);
```

```
long double tanl(long double x);
```

Link with *-lm*.

Feature Test Macro Requirements for glibc (see [feature_test_macros\(7\)](#)):

```
tanf(), tanl():
```

```
  _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 tangent of x , where x is given in radians.

RETURN VALUE

On success, these functions return the tangent of x .

If x is a NaN, a NaN is returned.

If x is positive infinity or negative infinity, a domain error occurs, and a NaN is returned.

If the correct result would overflow, a range error occurs, and the functions return **HUGE_VAL**, **HUGE_VALF**, or **HUGE_VALL**, respectively, with the mathematically correct sign.

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 is an infinity

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

Range error: result overflow

An overflow floating-point exception (**FE_OVERFLOW**) is raised.

ATTRIBUTES

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

Interface	Attribute	Value
tan(), tanf(), tanl()	Thread safety	MT-Safe

CONFORMING TO

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

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

BUGS

Before version 2.10, the glibc implementation did not set *errno* to **EDOM** when a domain error occurred.

SEE ALSO

[acos\(3\)](#), [asin\(3\)](#), [atan\(3\)](#), [atan2\(3\)](#), [cos\(3\)](#), [ctan\(3\)](#), [sin\(3\)](#)

COLOPHON

This page is part of release 4.10 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/>.