

**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
<b>tan()</b> , <b>tanf()</b> , <b>tanl()</b>	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**

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