

**NAME**

atan, atanf, atanl - arc tangent function

**SYNOPSIS**

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

```
double atan(double x);
```

```
float atanf(float x);
```

```
long double atanl( long double x);
```

Link with *-lm*.

Feature Test Macro Requirements for glibc (see [feature\\_test\\_macros\(7\)](#)):

```
atanf(), atanl():
```

```
  _BSD_SOURCE || _SVID_SOURCE || _XOPEN_SOURCE >= 600 || _ISOC99_SOURCE ||
```

```
  _POSIX_C_SOURCE >= 200112L;
```

```
  or cc -std=c99
```

**DESCRIPTION**

The **atan()** function calculates the principal value of the arc tangent of  $x$ ; that is the value whose tangent is  $x$ .

**RETURN VALUE**

On success, these functions return the principal value of the arc tangent of  $x$  in radians; the return value is in the range  $[-\pi/2, \pi/2]$ .

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),  $+\pi/2$  ( $-\pi/2$ ) is returned.

**ERRORS**

No errors occur.

**ATTRIBUTES**

**Multithreading (see [pthreads\(7\)](#))**

The **atan()**, **atanf()**, and **atanl()** functions are thread-safe.

**CONFORMING TO**

C99, POSIX.1-2001. The variant returning *double* also conforms to SVr4, 4.3BSD, C89.

**SEE ALSO**

[acos\(3\)](#), [asin\(3\)](#), [atan2\(3\)](#), [carg\(3\)](#), [catan\(3\)](#), [cos\(3\)](#), [sin\(3\)](#), [tan\(3\)](#)

**COLOPHON**

This page is part of release 3.74 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 <http://www.kernel.org/doc/man-pages/>.