

**NAME**

atan, atanf, atanl – arc tangent function

**LIBRARY**

Math library (*libm*, *-lm*)

**SYNOPSIS**

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

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

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

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

Feature Test Macro Requirements for glibc (see **feature\_test\_macros(7)**):

**atanf()**, **atanl()**:

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
```

```
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
```

```
|| /* glibc <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

**DESCRIPTION**

These functions calculate 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**

For an explanation of the terms used in this section, see **attributes(7)**.

Interface	Attribute	Value
<b>atan()</b> , <b>atanf()</b> , <b>atanl()</b>	Thread safety	MT-Safe

**STANDARDS**

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

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

**SEE ALSO**

**acos(3)**, **asin(3)**, **atan2(3)**, **carg(3)**, **catan(3)**, **cos(3)**, **sin(3)**, **tan(3)**