

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
atan(), atanf(), atanl()	Thread safety	MT-Safe

STANDARDS

C11, POSIX.1-2008.

HISTORY

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)**