

**NAME**

acos, acosf, acosl – arc cosine function

**SYNOPSIS**

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

```
double acos(double x);
```

```
float acosf(float x);
```

```
long double acosl(long double x);
```

Link with `-lm`.

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

```
acosf(), acosl():
```

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L || /* Since glibc 2.19: */ _DE-  
FAULT_SOURCE || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

**DESCRIPTION**

These functions calculate the arc cosine of  $x$ ; that is the value whose cosine is  $x$ .

**RETURN VALUE**

On success, these functions return the arc cosine of  $x$  in radians; the return value is in the range  $[0, \pi]$ .

If  $x$  is a NaN, a NaN is returned.

If  $x$  is  $+1$ ,  $+0$  is returned.

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

If  $x$  is outside the range  $[-1, 1]$ , a domain error occurs, and a NaN is returned.

**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 outside the range  $[-1, 1]$

`errno` is set to **EDOM**. An invalid floating-point exception (**FE\_INVALID**) is raised.

**ATTRIBUTES**

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

Interface	Attribute	Value
acos(), acosf(), acosl()	Thread safety	MT-Safe

**CONFORMING TO**

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

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

**SEE ALSO**

[asin\(3\)](#), [atan\(3\)](#), [atan2\(3\)](#), [cacos\(3\)](#), [cos\(3\)](#), [sin\(3\)](#), [tan\(3\)](#)

**COLOPHON**

This page is part of release 4.16 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/>.