

**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: */ _DEFAULT_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
<b>acos()</b> , <b>acosf()</b> , <b>acosl()</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.

**SEE ALSO**

**asin(3)**, **atan(3)**, **atan2(3)**, **cacos(3)**, **cos(3)**, **sin(3)**, **tan(3)**

**COLOPHON**

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