NAME

acos, acosf, acosl − arc cosine function

LIBRARY

Math library (*libm*, *−lm*)

SYNOPSIS

```
#include <math.h>

double acos(double x);
float acosf(float x);
long double acosl(long double x);
```

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 <= 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

STANDARDS

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

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

SEE ALSO

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