

NAME

cos, cosf, cosl – cosine function

LIBRARY

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

SYNOPSIS

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

```
double cos(double x);
```

```
float cosf(float x);
```

```
long double cosl(long double x);
```

Feature Test Macro Requirements for glibc (see **feature_test_macros(7)**):

```
cosf(), cosl():
```

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

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

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

DESCRIPTION

These functions return the cosine of *x*, where *x* is given in radians.

RETURN VALUE

On success, these functions return the cosine of *x*.

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

If *x* is positive infinity or negative infinity, 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 an infinity

errno is set to **EDOM** (but see **BUGS**). 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
cos(), cosf(), cosl()	Thread safety	MT-Safe

STANDARDS

C11, POSIX.1-2008.

HISTORY

C89, POSIX.1-2001.

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

BUGS

Before glibc 2.10, the glibc implementation did not set *errno* to **EDOM** when a domain error occurred.

SEE ALSO

acos(3), **asin(3)**, **atan(3)**, **atan2(3)**, **ccos(3)**, **sin(3)**, **sincos(3)**, **tan(3)**