NAME

erf, erff, erfl, − error function

SYNOPSIS

#include <math.h>

double erf(double *x***);**
float erff(float *x***);**
long double erfl(long double *x***);**

Link with −*lm*.

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

erf():
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L || _XOPEN_SOURCE
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
erff(), **erfl**():
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE

DESCRIPTION

These functions return the error function of *x*, defined as

erf(x) = 2/sqrt(pi)* integral from 0 to x of exp(−t*t) dt

RETURN VALUE

On success, these functions return the error function of *x*, a value in the range [−1, 1].

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), +1 (−1) is returned.

If *x* is subnormal, a range error occurs, and the return value is 2*x/sqrt(pi).

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:

Range error: result underflow (*x* is subnormal)
An underflow floating-point exception (**FE_UNDERFLOW**) is raised.

These functions do not set *errno*.

ATTRIBUTES

For an explanation of the terms used in this section, see **attributes**(7).

Interface	Attribute	Value
erf(), **erff**(), **erfl**()	Thread safety	MT-Safe

CONFORMING TO

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

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

SEE ALSO

cerf(3), **erfc**(3), **exp**(3)

COLOPHON

This page is part of release 5.05 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/.