NAME

exp, expf, expl - base-e exponential function

SYNOPSIS

#include <math.h>

double exp(double *x***);**
float expf(float *x***);**
long double expl(long double *x***);**

Link with *-lm*.

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

expf(), **expl**():
    _BSD_SOURCE || _SVID_SOURCE || _XOPEN_SOURCE >= 600 || _ISOC99_SOURCE ||
    _POSIX_C_SOURCE >= 200112L;
    or *cc -std=c99*

DESCRIPTION

The **exp**() function returns the value of e (the base of natural logarithms) raised to the power of *x*.

RETURN VALUE

On success, these functions return the exponential value of *x*.

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

If *x* is positive infinity, positive infinity is returned.

If *x* is negative infinity, +0 is returned.

If the result underflows, a range error occurs, and zero is returned.

If the result overflows, a range error occurs, and the functions return +**HUGE_VAL**, +**HUGE_VALF**, or +**HUGE_VALL**, respectively.

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, overflow
    errno is set to **ERANGE**. An overflow floating-point exception (**FE_OVERFLOW**) is raised.

Range error, underflow
    errno is set to **ERANGE**. An underflow floating-point exception (**FE_UNDER-FLOW**) is raised.

CONFORMING TO

C99, POSIX.1-2001. The variant returning *double* also conforms to SVr4, 4.3BSD, C89.

SEE ALSO

cbrt(3), cexp(3), exp10(3), exp2(3), sqrt(3)

COLOPHON

This page is part of release 3.74 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 http://www.kernel.org/doc/man-pages/.