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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'expm1l.3' command

$ man expm1l.3

EXPM1(3) Linux Programmer's Manual EXPM1(3)

NAME

expm1, expm1f, expm1l - exponential minus 1

SYNOPSIS

```
#include <math.h>

double expm1(double x);

float expm1f(float x);

long double expm1l(long double x);
```

Link with -lm.

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

expm1():

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
    || _XOPEN_SOURCE >= 500
    || /* Since glibc 2.19: */ _DEFAULT_SOURCE
    || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

expm1f(), expm1l():

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
    || /* Since glibc 2.19: */ _DEFAULT_SOURCE
    || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

DESCRIPTION

These functions return a value equivalent to

```
exp(x) - 1
```

The result is computed in a way that is accurate even if the value of x

is near zero?a case where exp(x) - 1 would be inaccurate due to sub?
traction of two numbers that are nearly equal.

RETURN VALUE

On success, these functions return exp(x) - 1.

If x is a NaN, a NaN is returned.

If x is +0 (-0), +0 (-0) is returned.

If x is positive infinity, positive infinity is returned.

If x is negative infinity, -1 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 (but see BUGS). An overflow floating-point exception (FE_OVERFLOW) is raised.

ATTRIBUTES

For an explanation of the terms used in this section, see at?
tributes(7).

??
?Interface ? Attribute ? Value ?
??
?expm1(), expm1f(), expm1l() ? Thread safety ? MT-Safe ?
??

CONFORMING TO

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

BUGS

Before glibc 2.17, on certain architectures (e.g., x86, but not x86_64) expm1() raised a bogus underflow floating-point exception for some large negative x values (where the function result approaches -1),

Before approximately glibc version 2.11, expm1() raised a bogus invalid floating-point exception in addition to the expected overflow excep?

tion, and returned a NaN instead of positive infinity. for some large positive x values,

Before version 2.11, the glibc implementation did not set errno to ERANGE when a range error occurred.

SEE ALSO

exp(3), log(3), log1p(3)

COLOPHON

This page is part of release 5.10 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/.

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