

NAME

drem, dremf, drem1, remainder, remainderf, remainderl – floating-point remainder function

SYNOPSIS

```
#include <math.h>

/* The C99 versions */
double remainder(double x, double y);
float remainderf(float x, float y);
long double remainderl(long double x, long double y);

/* Obsolete synonyms */
double drem(double x, double y);
float dremf(float x, float y);
long double drem1(long double x, long double y);
```

Link with *-lm*.

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

```
remainder():
    _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
    || _XOPEN_SOURCE >= 500
    || /* Since glibc 2.19: */ _DEFAULT_SOURCE
    || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
remainderf(), remainderl():
    _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
    || /* Since glibc 2.19: */ _DEFAULT_SOURCE
    || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
drem(), dremf(), drem1():
    /* Since glibc 2.19: */ _DEFAULT_SOURCE
    || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

DESCRIPTION

These functions compute the remainder of dividing x by y . The return value is $x - n * y$, where n is the value x / y , rounded to the nearest integer. If the absolute value of $x - n * y$ is 0.5, n is chosen to be even.

These functions are unaffected by the current rounding mode (see **fenv(3)**).

The **drem()** function does precisely the same thing.

RETURN VALUE

On success, these functions return the floating-point remainder, $x - n * y$. If the return value is 0, it has the sign of x .

If x or y is a NaN, a NaN is returned.

If x is an infinity, and y is not a NaN, a domain error occurs, and a NaN is returned.

If y is zero, and x is not a NaN, 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 and y is not a NaN

errno is set to **EDOM** (but see **BUGS**). An invalid floating-point exception (**FE_INVALID**) is raised.

These functions do not set *errno* for this case.

Domain error: *y* is zero

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
drem() , dremf() , dreml() , remainder() , remainderf() , remainderl()	Thread safety	MT-Safe

CONFORMING TO

The functions **remainder()**, **remainderf()**, and **remainderl()** are specified in C99, POSIX.1-2001, and POSIX.1-2008.

The function **drem()** is from 4.3BSD. The *float* and *long double* variants **dremf()** and **dreml()** exist on some systems, such as Tru64 and glibc2. Avoid the use of these functions in favor of **remainder()** etc.

BUGS

Before glibc 2.15, the call

```
remainder(nan(""), 0);
```

returned a NaN, as expected, but wrongly caused a domain error. Since glibc 2.15, a silent NaN (i.e., no domain error) is returned.

Before glibc 2.15, *errno* was not set to **EDOM** for the domain error that occurs when *x* is an infinity and *y* is not a NaN.

EXAMPLE

The call "remainder(29.0, 3.0)" returns -1 .

SEE ALSO

div(3), **fmod(3)**, **remquo(3)**

COLOPHON

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