NAME

drem, dremf, dreml, 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 dreml(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**(), **dreml**():
/* 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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