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

\$ man remquo.3p

REMQUO(3P) POSIX Programmer's Manual REMQUO(3P)

PROLOG

This manual page is part of the POSIX Programmer's Manual. The Linux implementation of this interface may differ (consult the corresponding Linux manual page for details of Linux behavior), or the interface may not be implemented on Linux.

NAME

remquo, remquof, remquol ? remainder functions

SYNOPSIS

```
#include <math.h>

double remquo(double x, double y, int *quo);

float remquof(float x, float y, int *quo);

long double remquol(long double x, long double y, int *quo);
```

DESCRIPTION

The functionality described on this reference page is aligned with the ISO C standard. Any conflict between the requirements described here and the ISO C standard is unintentional. This volume of POSIX.1?2017 defers to the ISO C standard.

The `remquo()`, `remquof()`, and `remquol()` functions shall compute the same remainder as the `remainder()`, `remainderf()`, and `remainderl()` functions, respectively. In the object pointed to by `quo`, they store a value whose sign is the sign of x/y and whose magnitude is congruent modulo $2n$ to the magnitude of the integral quotient of x/y , where n is an implemen?

tation-defined integer greater than or equal to 3. If y is zero, the value stored in the object pointed to by `quo` is unspecified.

An application wishing to check for error situations should set `errno` to zero and call `feclearexcept(FE_ALL_EXCEPT)` before calling these functions. On return, if `errno` is non-zero or `fetestexcept(FE_INVALID | FE_DIVBYZERO | FE_OVERFLOW | FE_UNDERFLOW)` is non-zero, an error has occurred.

RETURN VALUE

These functions shall return $x \text{ REM } y$.

On systems that do not support the IEC 60559 Floating-Point option, if y is zero, it is implementation-defined whether a domain error occurs or zero is returned.

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

If x is ∞ or y is zero and the other argument is non-NaN, a domain error shall occur, and a NaN shall be returned.

ERRORS

These functions shall fail if:

Domain Error

The x argument is ∞ , or the y argument is 0 and the other argument is non-NaN.

If the integer expression `(math_errhandling & MATH_ERRNO)` is non-zero, then `errno` shall be set to [EDOM]. If the integer expression `(math_errhandling & MATH_ERREXCEPT)` is non-zero, then the invalid floating-point exception shall be raised.

These functions may fail if:

Domain Error

The y argument is zero.

If the integer expression `(math_errhandling & MATH_ERRNO)` is non-zero, then `errno` shall be set to [EDOM]. If the integer expression `(math_errhandling & MATH_ERREXCEPT)` is non-zero, then the invalid floating-point exception shall be raised.

The following sections are informative.

EXAMPLES

None.

APPLICATION USAGE

On error, the expressions (`math_errhandling & MATH_ERRNO`) and (`math_errhandling & MATH_ERREXCEPT`) are independent of each other, but at least one of them must be non-zero.

RATIONALE

These functions are intended for implementing argument reductions which can exploit a few low-order bits of the quotient. Note that `x` may be so large in magnitude relative to `y` that an exact representation of the quotient is not practical.

FUTURE DIRECTIONS

None.

SEE ALSO

`feclearexcept()`, `fetestexcept()`, `remainder()`

The Base Definitions volume of POSIX.1-2017, Section 4.20, Treatment of Error Conditions for Mathematical Functions, `<math.h>`

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