NAME
remainder, **remainderf**, **remainderl**, **remquo**, **remquof**, **remquol** - minimal residue functions

LIBRARY
Math Library (libm, -lm)

SYNOPSIS
#include <math.h>

double
remainder(*double x*, *double y*);

float
remainderf(*float x*, *float y*);

long double
remainderl(*long double x*, *long double y*);

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
remainder(), **remainderf**(), **remainderl**(), **remquo**(), **remquof**(), and **remquol**() return the remainder $r := x - n*y$ where n is the integer nearest the exact value of x/y; moreover if $|n - x/y| = 1/2$ then n is even. Consequently the remainder is computed exactly and $|r| <= |y|/2$. But attempting to take the remainder when y is 0 or x is +-infinity is an invalid operation that produces a NaN.

The **remquo**(), **remquof**(), and **remquol**() functions also store the last k bits of n in the location pointed to by *quo*, provided that n exists. The number of bits k is platform-specific, but is guaranteed to be at least 3.

SEE ALSO
fmod(3), ieee(3), math(3)

STANDARDS

The **remainder**(), **remainderf**(), **remainderl**(), **remquo**(), **remquof**(), and **remquol**() routines conform to ISO/IEC 9899:1999 ("ISO C99"). The remainder is as defined in IEEE Std 754-1985.

HISTORY

The **remainder**() and **remainderf**() functions appeared in 4.3BSD and FreeBSD 2.0, respectively. The **remquo**() and **remquof**() functions were added in FreeBSD 6.0, and **remainderl**() and **remquol**() were added in FreeBSD 8.0.