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Rocky Enterprise Linux 9.2 Manual Pages on command 'rint.3'

$ man rint.3

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

NAME

    nearbyint, nearbyintf, nearbyintl, rint, rintf, rintl - round to near?

    est integer

SYNOPSIS

    #include <math.h>

    double nearbyint(double x);

    float nearbyintf(float x);

    long double nearbyintl(long double x);

    double rint(double x);

    float rintf(float x);

    long double rintl(long double x);

    Link with -lm.

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

    nearbyint(), nearbyintf(), nearbyintl():

      _POSIX_C_SOURCE >= 200112L || _ISOC99_SOURCE

    rint():

      _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L

|| _XOPEN_SOURCE >= 500

       || /* Since glibc 2.19: */ _DEFAULT_SOURCE

       || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE

   rintf(), rintl():

       _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L

          || /* Since glibc 2.19: */ _DEFAULT_SOURCE

          || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE

DESCRIPTION

The nearbyint(), nearbyintf(), and nearbyintl() functions round their
argument to an integer value in floating-point format, using the cur‐
rent rounding direction (see fesetround(3)) and without raising the in‐
exact exception.   When the current rounding direction is to nearest,
these functions round halfway cases to the even integer in accordance
with IEEE-754.

The rint(), rintf(), and rintl() functions do the same, but will raise
the inexact exception (FE_INEXACT, checkable via fetestexcept(3)) when
the result differs in value from the argument.

RETURN VALUE

These functions return the rounded integer value.

If x is integral, +0, -0, NaN, or infinite, x itself is returned.

ERRORS

No errors occur. POSIX.1-2001 documents a range error for overflows,
but see NOTES.

ATTRIBUTES

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

```
┌───────────────────────────────────────────────────────────────────┐
│Interface              │ Attribute    │ Value   │
├───────────────────────────────────────────────────────────────────┤
│nearbyint(), nearbyintf(), │ Thread safety │ MT-Safe │
│nearbyintl(), rint(),      │              │         │
│rintf(), rintl()           │              │         │
└───────────────────────────────────────────────────────────────────┘
```

CONFORMING TO

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

NOTES

SUSv2 and POSIX.1-2001 contain text about overflow (which might set er?
rno to ERANGE, or raise an FE_OVERFLOW exception). In practice, the
result cannot overflow on any current machine, so this error-handling
stuff is just nonsense. (More precisely, overflow can happen only when
the maximum value of the exponent is smaller than the number of man?
tissa bits. For the IEEE-754 standard 32-bit and 64-bit floating-point
numbers the maximum value of the exponent is 128 (respectively, 1024),
and the number of mantissa bits is 24 (respectively, 53).)

If you want to store the rounded value in an integer type, you probably
want to use one of the functions described in lrint(3) instead.

SEE ALSO

ceil(3), floor(3), lrint(3), round(3), trunc(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/.

2017-09-15   RINT(3)