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*Red Hat Enterprise Linux Release 9.2 Manual Pages on 'rint.3' command*

**\$ 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 -Im.

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

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

POSIX C SOURCE >= 200112L || ISO C99 SOURCE

rint():

ISO/IEC 9949-1:1999 (E) — SOURCE || POSIX C SOURCE >= 200112L

|| XOPEN SOURCE >= 500

|| /\* Since glibc 2.19: \*/ DEFAULT\_SOURCE

|| /\* Glibc versions <= 2.19: \*/ BSD\_SOURCE || SVr4\_SOURCE

## rintf(), rintl():

| ISO/IEC 9949-1:1999 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 current rounding direction (see `fesetround(3)`) and without raising the inexact 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,  $+0$ ,  $-0$ ,  $\text{NaN}$ , 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 attributes(7).

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?Interface ? Attribute ? Value ?

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?`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 errno 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/>.

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