



Linux Ubuntu 26.04 Manual Pages on command 'rint.3'

\$ man rint.3

rint(3) Library Functions Manual rint(3)

NAME

nearbyint, nearbyintf, nearbyintl, rint, rintf, rintl - round to nearest integer

LIBRARY

Math library (libm, -lm)

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);
```

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 <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

rintf(), rintl():

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
```

```
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
|| /* glibc <= 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`, `NaN`, or infinite, `x` itself is returned.

ERRORS

No errors occur.

ATTRIBUTES

For an explanation of the terms used in this section, see `attributes(7)`.

??			
? Interface	? Attribute	? Value	?
??			
? <code>nearbyint()</code> , <code>nearbyintf()</code> , <code>nearbyintl()</code> , <code>rint()</code> , <code>rintf()</code> ,	? Thread safety	? MT-Safe	?
? <code>rintl()</code>	?	?	?
??			

STANDARDS

C11, POSIX.1-2008.

HISTORY

C99, POSIX.1-2001.

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 was just nonsense. (More precisely, overflow can happen only when the maximum value of the exponent is smaller than the number of mantissa bits. For the IEEE-754 standard 32-bit and 64-bit floating-point numbers the maximum value of the exponent is 127 (respectively, 1023), and the number of mantissa bits including the implicit

bit is 24 (respectively, 53).) This was removed in POSIX.1-2008.

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)`

Linux man-pages 6.17

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`rint(3)`