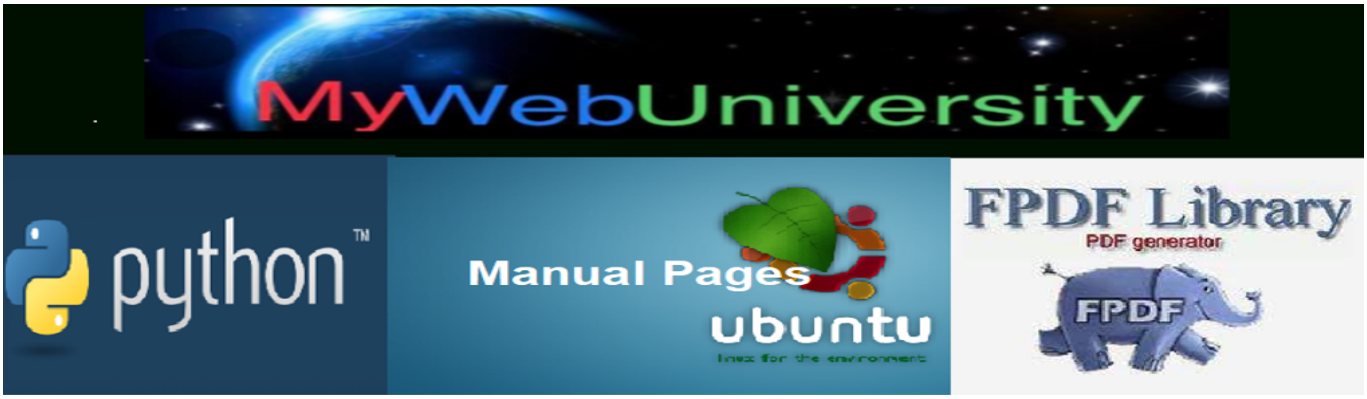

Rocky Enterprise Linux 9.2 Manual Pages on command 'jn.3'

$ man jn.3

J0(3) Linux Programmer's Manual J0(3)

NAME

j0, j0f, j0l, j1, j1f, j1l, jn, jnf, jnl - Bessel functions of the first kind

SYNOPSIS

```
#include <math.h>

double j0(double x);

double j1(double x);

double jn(int n, double x);

float j0f(float x);

float j1f(float x);

float jnf(int n, float x);

long double j0l(long double x);

long double j1l(long double x);

long double jnl(int n, long double x);

Link with -lm.
```

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

j0(), j1(), jn():

```
_XOPEN_SOURCE
    || /* Since glibc 2.19: */ _DEFAULT_SOURCE
    || /* Glibc versions <= 2.19: */ _SVID_SOURCE || _BSD_SOURCE
```

j0f(), j0l(), j1f(), j1l(), jnf(), jnl():

```
_XOPEN_SOURCE  >= 600
    || (_ISOC99_SOURCE && _XOPEN_SOURCE)
```

|| /* Since glibc 2.19: */ _DEFAULT_SOURCE

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

DESCRIPTION

The j0() and j1() functions return Bessel functions of x of the first kind of orders 0 and 1, respectively. The jn() function returns the Bessel function of x of the first kind of order n.

The j0f(), j1f(), and jnf(), functions are versions that take and return float values.

The j0l(), j1l(), and jnl() functions are versions that take and return long double values.

RETURN VALUE

On success, these functions return the appropriate Bessel value of the first kind for x.

If x is a NaN, a NaN is returned.

If x is too large in magnitude, or the result underflows, a range error occurs, and the return value is 0.

ERRORS

See math_error(7) for information on how to determine whether an error has occurred when calling these functions.

The following errors can occur:

Range error: result underflow, or x is too large in magnitude

errno is set to ERANGE.

These functions do not raise exceptions for fetestexcept(3).

ATTRIBUTES

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

Interface	Attribute	Value
j0(), j0f(), j0l()	Thread safety	MT-Safe
j1(), j1f(), j1l()	Thread safety	MT-Safe
jn(), jnf(), jnl()	Thread safety	MT-Safe

CONFORMING TO

The functions returning double conform to SVr4, 4.3BSD, POSIX.1-2001, and POSIX.1-2008.

The others are nonstandard functions that also exist on the BSDs.

BUGS

There are errors of up to 2e-16 in the values returned by j0(), j1(), and jn() for values of x between -8 and 8.

SEE ALSO

y0(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/.