



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

\$ man isnormal.3

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

NAME

fpclassify, isfinite, isnormal, isnan, isinf - floating-point classification macros

SYNOPSIS

```
#include <math.h>
```

```
int fpclassify(x);
```

```
int isfinite(x);
```

```
int isnormal(x);
```

```
int isnan(x);
```

```
int isinf(x);
```

Link with -lm.

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

fpclassify(), isfinite(), isnormal():

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

isnan():

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

```
|| _XOPEN_SOURCE
```

```
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
```

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

isinf():

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

```
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
```

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

DESCRIPTION

Floating point numbers can have special values, such as infinite or NaN. With the macro `fpclassify(x)` you can find out what type `x` is.

The macro takes any floating-point expression as argument. The result is one of the following values:

`FP_NAN` `x` is "Not a Number".

`FP_INFINITE` `x` is either positive infinity or negative infinity.

`FP_ZERO` `x` is zero.

`FP_SUBNORMAL` `x` is too small to be represented in normalized format.

`FP_NORMAL` if nothing of the above is correct then it must be a normal floating-point number.

The other macros provide a short answer to some standard questions.

`isfinite(x)` returns a nonzero value if

`(fpclassify(x) != FP_NAN && fpclassify(x) != FP_INFINITE)`

`isnormal(x)` returns a nonzero value if `(fpclassify(x) == FP_NORMAL)`

`isnan(x)` returns a nonzero value if `(fpclassify(x) == FP_NAN)`

`isinf(x)` returns 1 if `x` is positive infinity, and -1 if `x` is negative infinity.

ATTRIBUTES

For an explanation of the terms used in this section, see at?

tributes(7).

??

?Interface ? Attribute ? Value ?

??

?fpclassify(), isfinite(), ? Thread safety ? MT-Safe ?

?isnormal(), isnan(), isinf() ? ? ?

??

CONFORMING TO

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

For `isinf()`, the standards merely say that the return value is nonzero if and only if the argument has an infinite value.

NOTES

In glibc 2.01 and earlier, `isinf()` returns a nonzero value (actually:

1) if `x` is positive infinity or negative infinity. (This is all that C99 requires.)

SEE ALSO

`finite(3)`, `INFINITY(3)`, `isgreater(3)`, `signbit(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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