

NAME

fpclassify, **isfinite**, **isinf**, **isnan**, **isnormal** - classify a floating-point number

LIBRARY

Math Library (libm, -lm)

SYNOPSIS

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

int

```
fpclassify(real-floating x);
```

int

```
isfinite(real-floating x);
```

int

```
isinf(real-floating x);
```

int

```
isnan(real-floating x);
```

int

```
isnormal(real-floating x);
```

DESCRIPTION

The **fpclassify**() macro takes an argument of *x* and returns one of the following manifest constants.

FP_INFINITE Indicates that *x* is an infinite number.

FP_NAN Indicates that *x* is not a number (NaN).

FP_NORMAL Indicates that *x* is a normalized number.

FP_SUBNORMAL Indicates that *x* is a denormalized number.

FP_ZERO Indicates that *x* is zero (0 or -0).

The **isfinite**() macro returns a non-zero value if and only if its argument has a finite (zero, subnormal, or normal) value. The **isinf**(), **isnan**(), and **isnormal**() macros return non-zero if and only if *x* is an infinity, NaN, or a non-zero normalized number, respectively.

The symbol **isnanf()** is provided as an alias to **isnan()** for compatibility, and its use is deprecated. Similarly, **finite()** and **finitef()** are deprecated versions of **isfinite()**.

SEE ALSO

isgreater(3), math(3), signbit(3)

STANDARDS

The **fpclassify()**, **isfinite()**, **isinf()**, **isnan()**, and **isnormal()** macros conform to ISO/IEC 9899:1999 ("ISO C99").

HISTORY

The **fpclassify()**, **isfinite()**, **isinf()**, **isnan()**, and **isnormal()** macros were added in FreeBSD 5.1. 3BSD introduced **isinf()** and **isnan()** functions, which accepted *double* arguments; these have been superseded by the macros described above.