

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FreeBSD 5.1. 3BSD introduced **isinf()** and **isnan()** functions, which accepted *double* arguments; these have been superseded by the macros described above.