NAME

gamma, gammaf, gammal − (logarithm of the) gamma function

LIBRARY

Math library (*libm*, *−lm*)

SYNOPSIS

```
#include <math.h>

[[deprecated]] double gamma(double x);
[[deprecated]] float gammaf(float x);
[[deprecated]] long double gammal(long double x);
```

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

gamma():
_XOPEN_SOURCE
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
|| /* glibc <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE

gammaf(), **gammal**():
_XOPEN_SOURCE >= 600 || (_XOPEN_SOURCE && _ISOC99_SOURCE)
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
|| /* glibc <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE

DESCRIPTION

These functions are deprecated: instead, use either the **tgamma**(3) or the **lgamma**(3) functions, as appropriate.

For the definition of the Gamma function, see **tgamma**(3).

***BSD version**

The libm in 4.4BSD and some versions of FreeBSD had a **gamma**() function that computes the Gamma function, as one would expect.

glibc version

glibc has a **gamma**() function that is equivalent to **lgamma**(3) and computes the natural logarithm of the Gamma function.

RETURN VALUE

See **lgamma**(3).

ERRORS

See **lgamma**(3).

ATTRIBUTES

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

Interface	Attribute	Value
gamma(), **gammaf**(), **gammal**()	Thread safety	MT-Unsafe race:signgam

STANDARDS

Because of historical variations in behavior across systems, this function is not specified in any recent standard. It was documented in SVID 2.

NOTES

History

4.2BSD had a **gamma**() that computed ln(|Gamma(|*x*|)|), leaving the sign of Gamma(|*x*|) in the external integer *signgam*. In 4.3BSD the name was changed to **lgamma**(3), and the man page promises

> "At some time in the future the name gamma will be rehabilitated and used for the Gamma function"

This did indeed happen in 4.4BSD, where **gamma**() computes the Gamma function (with no effect on *signgam*). However, this came too late, and we now have **tgamma**(3), the "true gamma" function.

SEE ALSO

lgamma(3), **signgam**(3), **tgamma**(3)