

NAME

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

SYNOPSIS

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

```
double gamma(double x);
```

```
float gammaf(float x);
```

```
long double gammal(long double x);
```

Link with `-lm`.

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

```
gamma():
```

```
    _XOPEN_SOURCE
```

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

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

```
gammaf(), gammal():
```

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

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

```
    /* Glibc versions <= 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

CONFORMING TO

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)

COLOPHON

This page is part of release 5.02 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/>.