

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
<code>gamma()</code> , <code>gammaf()</code> , <code>gammal()</code>	Thread safety	MT-Unsafe race:siggam

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 *siggam*. 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 *siggam*). 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 5.05 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/>.