



Linux Ubuntu 26.04 Manual Pages on command 'gamma.3'

\$ man gamma.3

gamma(3) Library Functions Manual gamma(3)

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

STANDARDS

None.

HISTORY

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

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)`

