

NAME

sqrt, sqrtf, sqrtl – square root function

SYNOPSIS

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

```
double sqrt(double x);
```

```
float sqrtf(float x);
```

```
long double sqrtl(long double x);
```

Link with `-lm`.

Feature Test Macro Requirements for glibc (see [feature_test_macros\(7\)](#)):

```
sqrtf(), sqrtl():
```

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L || /* Since glibc 2.19: */ _DE-  
FAULT_SOURCE || /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

DESCRIPTION

These functions return the nonnegative square root of x .

RETURN VALUE

On success, these functions return the square root of x .

If x is a NaN, a NaN is returned.

If x is +0 (−0), +0 (−0) is returned.

If x is positive infinity, positive infinity is returned.

If x is less than −0, a domain error occurs, and a NaN is returned.

ERRORS

See [math_error\(7\)](#) for information on how to determine whether an error has occurred when calling these functions.

The following errors can occur:

Domain error: x less than −0

`errno` is set to **EDOM**. An invalid floating-point exception (**FE_INVALID**) is raised.

ATTRIBUTES

For an explanation of the terms used in this section, see [attributes\(7\)](#).

| Interface | Attribute | Value |
|--------------------------|---------------|---------|
| sqrt(), sqrtf(), sqrtl() | Thread safety | MT-Safe |

CONFORMING TO

C99, POSIX.1-2001, POSIX.1-2008.

The variant returning *double* also conforms to SVr4, 4.3BSD, C89.

SEE ALSO

[cbrt\(3\)](#), [csqrt\(3\)](#), [hypot\(3\)](#)

COLOPHON

This page is part of release 4.16 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/>.