

**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: */ _DEFAULT_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
<code>sqrt()</code> , <code>sqrtf()</code> , <code>sqrtl()</code>	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**

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