

**NAME**

`sqrt`, `sqrtrf`, `sqrtrl` – square root function

**SYNOPSIS**

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

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

```
float sqrtrf(float x);
```

```
long double sqrtrl(long double x);
```

Link with `-lm`.

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

```
sqrtrf(), sqrtrl():
```

```
_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>sqrtrf()</code> , <code>sqrtrl()</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**

This page is part of release 4.09 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/>.

