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### ***Rocky Enterprise Linux 9.2 Manual Pages on command 'hypotl.3'***

**\$ man hypotl.3**

HYPOT(3)                      Linux Programmer's Manual                      HYPOT(3)

#### **NAME**

hypot, hypotf, hypotl - Euclidean distance function

#### **SYNOPSIS**

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

```
double hypot(double x, double y);
```

```
float hypotf(float x, float y);
```

```
long double hypotl(long double x, long double y);
```

Link with -lm.

Feature Test Macro Requirements for glibc (see feature\_test\_macros(7)):

hypot():

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
```

```
|| _XOPEN_SOURCE
```

```
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
```

```
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

hypotf(), hypotl():

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
```

```
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
```

```
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

#### **DESCRIPTION**

These functions return  $\sqrt{x^2+y^2}$ . This is the length of the hypotenuse of a right-angled

triangle with sides of length  $x$  and  $y$ , or the distance of the point  $(x,y)$  from the

origin.

The calculation is performed without undue overflow or underflow during the intermediate steps of the calculation.

## RETURN VALUE

On success, these functions return the length of the hypotenuse of a right-angled triangle with sides of length  $x$  and  $y$ .

If  $x$  or  $y$  is an infinity, positive infinity is returned.

If  $x$  or  $y$  is a NaN, and the other argument is not an infinity, a NaN is returned.

If the result overflows, a range error occurs, and the functions return HUGE\_VAL, HUGE\_VALF, or HUGE\_VALL, respectively.

If both arguments are subnormal, and the result is subnormal, a range error occurs, and the correct result 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:

Range error: result overflow

`errno` is set to `ERANGE`. An overflow floating-point exception (`FE_OVERFLOW`) is raised.

Range error: result underflow

An underflow floating-point exception (`FE_UNDERFLOW`) is raised.

These functions do not set `errno` for this case.

## ATTRIBUTES

For an explanation of the terms used in this section, see `attributes(7)`.

??

?Interface                ? Attribute    ? Value    ?

??

?hypot(), hypotf(), hypotl() ? Thread safety ? MT-Safe ?

??

## CONFORMING TO

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

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

## SEE ALSO

`cabs(3)`, `sqrt(3)`

## COLOPHON

This page is part of release 5.10 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/>.

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