Full credit is given to the above companies including the OS that this PDF file was generated!

Red Hat Enterprise Linux Release 9.2 Manual Pages on 'hypot.3p' command

$ man hypot.3p

HYPOT(3P) POSIX Programmer's Manual HYPOT(3P)

PROLOG

This manual page is part of the POSIX Programmer's Manual. The Linux implementation of this interface may differ (consult the corresponding Linux manual page for details of Linux behavior), or the interface may not be implemented on Linux.

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);
```

DESCRIPTION

The functionality described on this reference page is aligned with the ISO C standard. Any conflict between the requirements described here and the ISO C standard is unintentional. This volume of POSIX.1?2017 defers to the ISO C standard.

These functions shall compute the value of the square root of x2+y2 without undue overflow or underflow.

An application wishing to check for error situations should set errno to zero and call feclearexcept(FE_ALL_EXCEPT) before calling these functions. On return, if errno is non-zero or fetestexcept(FE_INVALID |

FE_DIVBYZERO | FE_OVERFLOW | FE_UNDERFLOW) is non-zero, an error has occurred.

RETURN VALUE

Upon successful completion, these functions shall return the length of the hypotenuse of a right-angled triangle with sides of length x and y.

If the correct value would cause overflow, a range error shall occur and hypot(), hypotf(), and hypotl() shall return the value of the macro HUGE_VAL, HUGE_VALF, and HUGE_VALL, respectively.

If x or y is ?Inf, +Inf shall be returned (even if one of x or y is NaN).

If x or y is NaN, and the other is not ?Inf, a NaN shall be returned.

If both arguments are subnormal and the correct result is subnormal, a range error may occur and the correct result shall be returned.

ERRORS

These functions shall fail if:

Range Error The result overflows.

If the integer expression (math_errhandling & MATH_ERRNO) is non-zero, then errno shall be set to [ERANGE]. If the integer expression (math_errhandling & MATH_ERREXCEPT) is non-zero, then the overflow floating-point exception shall be raised.

These functions may fail if:

Range Error The result underflows.

If the integer expression (math_errhandling & MATH_ERRNO) is non-zero, then errno shall be set to [ERANGE]. If the integer expression (math_errhandling & MATH_ERREXCEPT) is non-zero, then the underflow floating-point exception shall be raised.

The following sections are informative.

EXAMPLES

See the EXAMPLES section in atan2().

APPLICATION USAGE

hypot(x,y), hypot(y,x), and hypot(x, -y) are equivalent.

hypot(x, ?0) is equivalent to fabs(x).

Underflow only happens when both x and y are subnormal and the (inex?
act) result is also subnormal.

These functions take precautions against overflow during intermediate
steps of the computation.

On error, the expressions (math_errhandling & MATH_ERRNO) and (math_er?
rhandling & MATH_ERREXCEPT) are independent of each other, but at least
one of them must be non-zero.

RATIONALE

None.

FUTURE DIRECTIONS

None.

SEE ALSO

atan2(), feclearexcept(), fetestexcept(), isnan(), sqrt()

The Base Definitions volume of POSIX.1?2017, Section 4.20, Treatment of
Error Conditions for Mathematical Functions, <math.h>