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## *Red Hat Enterprise Linux Release 9.2 Manual Pages on 'cos.3p' command*

***$ man cos.3p***

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

cos, cosf, cosl ? cosine function

SYNOPSIS

```
#include <math.h>
double cos(double x);
float cosf(float x);
long double cosl(long double x);
```

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 cosine of their argument x, measured in radians.

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 cosine of x.

If x is NaN, a NaN shall be returned.

If x is ?0, the value 1.0 shall be returned.

If x is ?Inf, a domain error shall occur, and a NaN shall be returned.

ERRORS

These functions shall fail if:

Domain Error

The x argument is ?Inf.

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

The following sections are informative.

EXAMPLES

Taking the Cosine of a 45-Degree Angle

```
#include <math.h>
...
double radians = 45 * M_PI / 180;
double result;
...
result = cos(radians);
```

APPLICATION USAGE

These functions may lose accuracy when their argument is near an odd multiple of ?/2 or is far from 0.

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

acos(), feclearexcept(), fetestexcept(), isnan(), sin(), tan()

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

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