

NAME

cospi, **cospif**, **cospil** - half-cycle cosine functions

LIBRARY

Math Library (libm, -lm)

SYNOPSIS

#include <math.h>

double

cospi(*double x*);

float

cospif(*float x*);

long double

cospil(*long double x*);

DESCRIPTION

The **cospi**(), **cospif**(), and **cospil**() functions compute the cosine of $\langle pi \rangle x$ and measure angles in half-cycles.

RETURN VALUES

The **cospi**(), **cospif**(), and **cospil**() functions returns $\cos(\langle pi \rangle x)$. If $|x| \geq 2^{(p-1)}$ where p is the floating-point precision of x , then the returned value is 1 and it has no significance.

SPECIAL VALUES

cospi($+0$) returns 1.

cospi($+n/2$) returns 0 for positive integers n .

cospi(n) returns 1 for even integers n .

cospi(n) returns -1 for odd integers n .

cospi($+-\langle infinity \rangle$) return an NaN and raises an FE_INVALID exception.

cospi(NaN) return an NaN and raises an FE_INVALID exception.

SEE ALSO

cos(3), fenv(3), math(3), sin(3), sinpi(3), tan(3), tanpi(3)

AUTHORS

The half-cycle trigonometric functions were written by Steven G. Kargl <kargl@FreeBSD.org>.

STANDARDS

These functions conform to IEEE Std 754tm-2008 , "IEEE Standard for Floating-Point Arithmetic" and to ISO/IEC TS 18661-4 , "Information technology -- Programming languages, their environments, and system software interfaces -- Floating-point extensions for C" -- Part 4: Supplementary functions.