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 <*pi*> *x x*. and measure angles in half-cycles.

RETURN VALUES

The **cospi**(), **cospif**(), and **cospil**() functions returns **cos**(<*pi*> *x x*). If |x| >= 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(+-<*infinity*>) 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 trignometric 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.