

**NAME**

**tanpi**, **tanpif**, **tanpil** - half-cycle tangent functions

**LIBRARY**

Math Library (libm, -lm)

**SYNOPSIS**

**#include** <math.h>

*double*

**tanpi**(*double x*);

*float*

**tanpif**(*float x*);

*long double*

**tanpil**(*long double x*);

**DESCRIPTION**

The **tanpi**(), **tanpif**(), and **tanpil**() functions compute the tangent of  $\langle pi \rangle x$  and measure angles in half-cycles.

**RETURN VALUES**

The **tanpi**(), **tanpif**(), and **tanpil**() functions returns **tan**( $\langle pi \rangle x$ ). If  $|x| \geq 2^{(p-1)}$  where  $p$  is the floating-point precision of  $x$ , then the returned value is  $+0$  and it has no significance.

**SPECIAL VALUES**

**tanpi**( $+0$ ) returns  $+0$ .

**tanpi**( $+n$ ) returns  $+0$  for positive integers  $n$ .

**tanpi**( $+n/2$ ) returns NaN for  $n > 0$  and raises an FE\_INVALID exception.

**tanpi**( $+-\langle infinity \rangle$ ) return an NaN and raises an FE\_INVALID exception.

**tanpi**(NaN) return an NaN and raises an FE\_INVALID exception.

**SEE ALSO**

cos(3), cospi(3), fenv(3), math(3), sin(3), sinpi(3), tan(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.