ATAN2(3)

NAME

atan2, atan2f, atan2l - arc tangent function of two variables

SYNOPSIS

```
#include <math.h>

double atan2(double y, double x);
float atan2f(float y, float x);
long double atan2l(long double y, long double x);
```

Link with -lm.

Feature Test Macro Requirements for glibc (see **feature_test_macros**(7)):

atan2f(), **atan2l**():

_BSD_SOURCE || _SVID_SOURCE || _XOPEN_SOURCE >= 600 || _ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L;

or cc -std=c99

DESCRIPTION

The **atan2**() function calculates the principal value of the arc tangent of y/x, using the signs of the two arguments to determine the quadrant of the result.

RETURN VALUE

On success, these functions return the principal value of the arc tangent of y/x in radians; the return value is in the range [-pi, pi].

If y is +0 (-0) and x is less than 0, +pi (-pi) is returned.

If y is +0 (-0) and x is greater than 0, +0 (-0) is returned.

If y is less than 0 and x is +0 or -0, -pi/2 is returned.

If y is greater than 0 and x is +0 or -0, pi/2 is returned.

If either x or y is NaN, a NaN is returned.

If y is +0 (-0) and x is -0, +pi (-pi) is returned.

If y is +0 (-0) and x is +0, +0 (-0) is returned.

If y is a finite value greater (less) than 0, and x is negative infinity, +pi (-pi) is returned.

If y is a finite value greater (less) than 0, and x is positive infinity, +0 (-0) is returned.

If y is positive infinity (negative infinity), and x is finite, pi/2 (-pi/2) is returned.

If y is positive infinity (negative infinity) and x is negative infinity, +3*pi/4 (-3*pi/4) is returned.

If y is positive infinity (negative infinity) and x is positive infinity, +pi/4 (-pi/4) is returned.

ERRORS

No errors occur.

CONFORMING TO

C99, POSIX.1-2001. The variant returning double also conforms to SVr4, 4.3BSD, C89.

SEE ALSO

acos(3), **asin**(3), **atan**(3), **carg**(3), **cos**(3), **sin**(3), **tan**(3)

COLOPHON

This page is part of release 3.54 of the Linux man-pages project. A description of the project, and information about reporting bugs, can be found at http://www.kernel.org/doc/man-pages/.

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