



### ***Rocky Enterprise Linux 9.2 Manual Pages on command 'atan2f.3'***

#### ***\$ man atan2f.3***

ATAN2(3)                      Linux Programmer's Manual                      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():

```
_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L
```

```
|| /* Since glibc 2.19: */ _DEFAULT_SOURCE
```

```
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

#### DESCRIPTION

These functions calculate 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 tan?

gent 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 infin?

ity,  $+\pi$  ( $-\pi$ ) is returned.

If  $y$  is a finite value greater (less) than 0, and  $x$  is positive infin?

ity,  $+0$  ( $-0$ ) 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 infin?

ity,  $+3\pi/4$  ( $-3\pi/4$ ) is returned.

If  $y$  is positive infinity (negative infinity) and  $x$  is positive infin?

ity,  $+\pi/4$  ( $-\pi/4$ ) is returned.

## ERRORS

No errors occur.

## ATTRIBUTES

For an explanation of the terms used in this section, see at?

tributes(7).

??

?Interface                    ? Attribute    ? Value    ?

??

?atan2(), atan2f(), atan2l() ? Thread safety ? MT-Safe ?

??

## CONFORMING TO

C99, POSIX.1-2001, POSIX.1-2008.

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 5.10 of the Linux man-pages project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.

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