



Rocky Enterprise Linux 9.2 Manual Pages on command 'catanl.3'

C:~>man catanl.3

CATAN(3) Linux Programmer's Manual CATAN(3)

NAME

catan, catanf, catanl - complex arc tangents

SYNOPSIS

```
#include <complex.h>

double complex catan(double complex z);
float complex catanf(float complex z);
long double complex catanl(long double complex z);

Link with -lm.
```

DESCRIPTION

These functions calculate the complex arc tangent of z . If $y = \text{catan}(z)$, then $z = \text{ctan}(y)$. The real part of y is chosen in the interval $[-\pi/2, \pi/2]$.

One has:

$$\text{catan}(z) = (\text{clog}(1 + i * z) - \text{clog}(1 - i * z)) / (2 * i)$$

VERSIONS

These functions first appeared in glibc in version 2.1.

ATTRIBUTES

For an explanation of the terms used in this section, see attributes(7).

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?Interface ? Attribute ? Value ?

??

?catan(), catanf(), catanl() ? Thread safety ? MT-Safe ?

??

CONFORMING TO

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

EXAMPLE

```
/* Link with "-lm" */
#include <complex.h>
#include <stdlib.h>
#include <unistd.h>
#include <stdio.h>

int
main(int argc, char *argv[])
{
    double complex z, c, f;
    double complex i = I;
    if (argc != 3) {
        fprintf(stderr, "Usage: %s <real> <imag>\n", argv[0]);
        exit(EXIT_FAILURE);
    }
    z = atof(argv[1]) + atof(argv[2]) * I;
    c = catan(z);
    printf("catan() = %6.3f %6.3f*i\n", creal(c), cimag(c));
    f = (clog(1 + i * z) - clog(1 - i * z)) / (2 * i);
    printf("formula = %6.3f %6.3f*i\n", creal(f2), cimag(f2));
    exit(EXIT_SUCCESS);
}
```

SEE ALSO

ccos(3), clog(3), ctan(3), complex(7)

COLOPHON

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