

# Python cmath Module

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# Python cmath Module

Python has a built-in module that you can use for mathematical tasks for complex numbers.

The methods in this module accepts int ,
float , and complex numbers. It even
accepts Python objects that has a
\_\_complex\_\_() or \_\_float\_\_() method.

The methods in this module almost always return a complex number. If the return value can be expressed as a real number, the return value has an imaginary part of 0.

The **cmath** module has a set of methods and constants.

## cMath Methods

Method	Description
<u>cmath.acos(x)</u>	Returns the arc cosine value of x
cmath.acosh(x)	Returns the hyperbolic





	arc cosine of x
<u>cmath.asin(x)</u>	Returns the arc sine of x
cmath.asinh(x)	Returns the hyperbolic arc sine of x
cmath.atan(x)	Returns the arc tangent value of x
cmath.atanh(x)	Returns the hyperbolic arctangent value of x
cmath.cos(x)	Returns the cosine of x
<u>cmath.cosh(x)</u>	Returns the hyperbolic cosine of x
<u>cmath.exp(x)</u>	Returns the value of E <sup>x</sup> , where E is Euler's number (approximately 2.718281), and x is the number passed to it
<u>cmath.isclose()</u>	Checks whether two values are close, or not
cmath.isfinite(x)	Checks whether x is a finite number
<u>cmath.isinf(x)</u>	Check whether x is a positive or negative infinty
<u>cmath.isnan(x)</u>	Checks whether x is NaN (not a number)
cmath.log(x[, base])	Returns the logarithm of x to the base
cmath.log10(x)	Returns the base-10 logarithm of x
<u>cmath.phase()</u>	Return the phase of a complex number
<u>cmath.polar()</u>	Convert a complex number to polar coordinates
<u>cmath.rect()</u>	Convert polar

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	coordinates to rectangular form
cmath.sin(x)	Returns the sine of x
cmath.sinh(x)	Returns the hyperbolic sine of x
<u>cmath.sqrt(x)</u>	Returns the square root of x
cmath.tan(x)	Returns the tangent of x
cmath.tanh(x)	Returns the hyperbolic tangent of x

## cMath Constants

Constant	Description
<u>cmath.e</u>	Returns Euler's number (2.7182)
<u>cmath.inf</u>	Returns a floating-point positive infinity value
cmath.infj	Returns a complex infinity value
cmath.nan	Returns floating-point NaN (Not a Number) value
<u>cmath.nanj</u>	Returns coplext NaN (Not a Number) value
cmath.pi	Returns PI (3.1415)
cmath.tau	Returns tau (6.2831)

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