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# Mathematical Functions

What are Mathematical Functions in C++?

## Explanation

Standard Function Library has a numerous set of **Mathematical Functions**. The header file required for mathematical functions are"**<cmath>**" or "**<math.h>**".

There are three macros used by Mathematical functions they are HUGE_VAL, EDOM, ERANGE that are declared using the header "<cerrno>" or the file "errno.h". In a function routine a large result or an overflow occurs it returns "HUGE_VAL" and the "errno" is set to "ERANGE" for a range error. When an underflow happens the function returns zero and sets the "errno" to "ERANGE". All the angles returned by cmath and math.h functions are in radians.

Following table lists few Mathematical functions of C++ Standard function Library. This function operated on "double" datatype, but now C++ also supports "float" and "long double".

| Name | Description |
|------|-------------|
| acos | Returns the arc cosine value. |
| atan | Returns the arc tangent value. |
| cos | Returns the cosine value. |
| cosh | Returns the hyperolic cosine value. |
| atan2 | Returns the arc tangent of y/x. |
| ceil | Returns the smallest integer not less than the given value. |
| exp | Returns the natural logarithm base "e" raised to the argument value. |
| fabs | Returns the absolute value of the num. |
| floor | Returns the largest Integer not greater than the given value. |
| fmod | Returns the remainder of two values. |
| frexp | Converts a number into a mantissa between the range .5 to less than 1. |
| ldexp | Returns the value of the number * 2 to the power of "exp" |
| log | Returns the natural algorithm for the given value. |
| log10 | Returns the base 10 algorithm for a number. |
| modf | Segregates the number into its integer and fractional parts. |
| pow | Returns the exponential value. |
| sin() | Return the sine value for the argument. |
| sinh()sinh | Return the hyperbolic sine value for the argument. |
| sqrt() | Returns the square root of the argument. |
| tanh() | Return the hyperbolic tangent value for the argument. |
| tan() | Return the tangent value for the argument. |

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sinh()

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