

C LIBRARY - <MATH.H>

http://www.tutorialspoint.com/c_standard_library/math_h.htm

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Introduction

The **math.h** header defines various mathematical functions and one macro. All the functions available in this library take **double** as an argument and return **double** as the result.

Library Macros

There is only one macro defined in this library:

S.N.	Macro & Description
1	HUGE_VAL When the result of a function may not be representable as a floating point number. If magnitude of the correct result is too large to be represented, the function sets <code>errno</code> to <code>ERANGE</code> to indicate a range error, and returns a particular very large value named by the macro <code>HUGE_VAL</code> or its negation (<code>- HUGE_VAL</code>). If the magnitude of the result is too small, a value of zero is returned instead. In this case, <code>errno</code> might or might not be set to <code>ERANGE</code> .

Library Functions

Following are the functions defined in the header `math.h`:

S.N.	Function & Description
1	<u>double acos(double x)</u> Returns the arc cosine of x in radians.
2	<u>double asin(double x)</u> Returns the arc sine of x in radians.
3	<u>double atan(double x)</u> Returns the arc tangent of x in radians.
4	<u>double atan2(double y, double x)</u> Returns the arc tangent in radians of y/x based on the signs of both values to determine the correct quadrant.
5	<u>double cos(double x)</u> Returns the cosine of a radian angle x.
6	<u>double cosh(double x)</u> Returns the hyperbolic cosine of x.
7	<u>double sin(double x)</u> Returns the sine of a radian angle x.
8	<u>double sinh(double x)</u> Returns the hyperbolic sine of x.
9	<u>double tanh(double x)</u> Returns the hyperbolic tangent of x.

10	<u>double exp(double x)</u> Returns the value of e raised to the xth power.
11	<u>double frexp(double x, int *exponent)</u> The returned value is the mantissa and the integer pointed to by exponent is the exponent. The resultant value is $x = \text{mantissa} * 2^{\text{exponent}}$.
12	<u>double ldexp(double x, int exponent)</u> Returns x multiplied by 2 raised to the power of exponent.
13	<u>double log(double x)</u> Returns the natural logarithm (base-e logarithm) of x.
14	<u>double log10(double x)</u> Returns the common logarithm (base-10 logarithm) of x.
15	<u>double modf(double x, double *integer)</u> The returned value is the fraction component (part after the decimal), and sets integer to the integer component.
16	<u>double pow(double x, double y)</u> Returns x raised to the power of y.
17	<u>double sqrt(double x)</u> Returns the square root of x.
18	<u>double ceil(double x)</u> Returns the smallest integer value greater than or equal to x.
19	<u>double fabs(double x)</u> Returns the absolute value of x
20	<u>double floor(double x)</u> Returns the largest integer value less than or equal to x.
21	<u>double fmod(double x, double y)</u> Returns the remainder of x divided by y.