C Library - <math.h>

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 −

Sr.No.	Macro & Description
1	**HUGE_VAL** This macro is used 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 errno to ERANGE to indicate a range error, and returns a particular, very large value named by the macro HUGE_VAL or its negation (- HUGE_VAL). If the magnitude of the result is too small, a value of zero is returned instead. In this case, errno might or might not be set to ERANGE.

Library Functions

Following are the functions defined in the header math.h −

Sr.No.	Function & Description
1	double acos(double x) Returns the arc cosine of x in radians.
2	double asin(double x) Returns the arc sine of x in radians.
3	double atan(double x) Returns the arc tangent of x in radians.
4	double atan2(double y, double x) Returns the arc tangent in radians of y/x based on the signs of both values to determine the correct quadrant.
5	double cos(double x) Returns the cosine of a radian angle x.
6	double cosh(double x) Returns the hyperbolic cosine of x.
7	double sin(double x) Returns the sine of a radian angle x.
8	double sinh(double x) Returns the hyperbolic sine of x.
9	double tanh(double x) Returns the hyperbolic tangent of x.
10	double exp(double x) Returns the value of **e** raised to the xth power.
11	double frexp(double x, int *exponent) The returned value is the mantissa and the integer pointed to by exponent is the exponent. The resultant value is x = mantissa * 2 ^ exponent.
12	double ldexp(double x, int exponent) Returns **x** multiplied by 2 raised to the power of exponent.

13	double log(double x)
	Returns the natural logarithm (base-e logarithm) of **x.**
14	double log10(double x)
	Returns the common logarithm (base-10 logarithm) of **x.**
15	double modf(double x, double *integer)
	The returned value is the fraction component (part after the decimal), and sets integer to the integer component.
16	double pow(double x, double y)
	Returns x raised to the power of **y.**
17	double sqrt(double x)
	Returns the square root of **x.**
18	double ceil(double x)
	Returns the smallest integer value greater than or equal to **x.**
19	double fabs(double x)
	Returns the absolute value of **x.**
20	double floor(double x)
	Returns the largest integer value less than or equal to **x.**
21	double fmod(double x, double y)
	Returns the remainder of x divided by **y.**