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Math Node

The *Math Node* performs math operations.

Inputs

The inputs of the node are dynamic. Some inputs are only available for certain operations. For instance, the *Addend* input is only available for the *Multip*
Add operator.

Value

Input Value. Trigonometric functions read this value as radians.

Addend

Input Addend.

Base

Input Base.

Exponent

Input Exponent.

Epsilon

Input Epsilon.

Distance

Input Distance.

Min

Input Minimum.

Max

Input Maximum.

Increment

Input Increment.

Scale

Input Scale.

Degrees

Input Degrees.

Radians

Input Radians.

Properties

Operation

The mathematical operator to be applied to the input values:

Functions

Add:

The sum of the two values.

Subtract:

The difference between the two values.

Multiply:

The product of the two values.

Divide:

The division of the first value by the second value.

Multiply Add:

The sum of the product of the two values with *Addend*.

Power:

The *Base* raised to the power of *Exponent*.

Logarithm:

The log of the value with a *Base* as its base.

Square Root:

The square root of the value.

Inverse Square Root:

One divided by the square root of the value.

Absolute:

The input value is read without regard to its sign. This turns negative values into positive values.

Exponent:

Raises [Euler's number](#) to the power of the value.

Comparison**Minimum:**

Outputs the smallest of the input values.

Maximum:

Outputs the largest of two input values.

Less Than:

Outputs 1.0 if the first value is smaller than the second value. Otherwise the output is 0.0.

Greater Than:

Outputs 1.0 if the first value is larger than the second value. Otherwise the output is 0.0.

Sign:

Extracts the sign of the input value. All positive numbers will output 1.0. All negative numbers will output -1.0. And 0.0 will output 0.

Compare:

Outputs 1.0 if the difference between the two input values is less than or equal to *Epsilon*.

Smooth Minimum:

[Smooth Minimum](#)

Smooth Maximum:

[Smooth Maximum](#)

Rounding**Round:**

Rounds the input value to the nearest integer.

Floor:

Rounds the input value down to the nearest integer.

Ceil:

Rounds the input value up to the nearest integer.

Truncate:

Outputs the integer part of the *value*.

Fraction:

Returns the fractional part of the *value*.

Truncated Modulo:

Outputs the remainder once the first value is divided by the second value.

Floored Modulo:

Returns the positive remainder of a division operation.

Wrap:

Outputs a value between *Min* and *Max* based on the absolute difference between the input value and the nearest integer multiple of *Max* less than the value.

Snap:

Rounds the input value down to the nearest integer multiple of *Increment*.

Ping-pong:

Bounces back and forth between 0.0 and the *Scale* as the input value increases.

Trigonometric

Sine:

The [Sine](#) of the input value.

Cosine:

The [Cosine](#) of the input value.

Tangent:

The [Tangent](#) of the input value.

Arcsine:

The [Arcsine](#) of the input value.

Arccosine:

The [Arccosine](#) of the input value.

Arctangent:

The [Arctangent](#) of the input value.

Arctan2:

Outputs the [Inverse Tangent](#) of the first value divided by the second value measured in radians.

Hyperbolic Sine:

The [Hyperbolic Sine](#) of the input value.

Hyperbolic Cosine:

The [Hyperbolic Cosine](#) of the input value.

Hyperbolic Tangent:

The [Hyperbolic Tangent](#) of the input value.

Conversion

To Radians:

Converts the input from degrees to radians.

To Degrees:

Converts the input from radians to degrees.

Clamp

Limits the output to the range (0.0 to 1.0). See [Clamp](#).

Outputs

Value

Numerical value output.

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Last updated on 2025-05-10

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