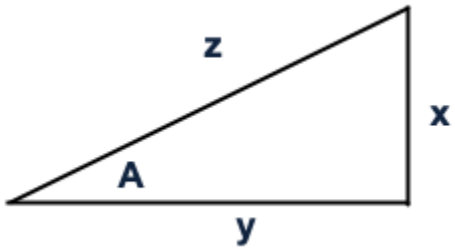
COS Function

Computes the cosine of an input value for an angle measured in radians. The value can be a Decimal or Integer literal or a reference to a column containing numeric values.



In the above, the cosine of angle A is computed as the following:

```
cos(A) = y/z
```

The secant of angle A is 1/cos(A), or:

```
sec(A) = 1/cos(A) = z/y
```

You can convert from degrees to radians. For more information, see *RADIANS Function*.

Wrangle vs. SQL: This function is part of Wrangle , a proprietary data transformation language. Wrangle is not SQL. For more information, see *Wrangle Language*.

Basic Usage

Numeric literal example:

```
round(cos(radians(30)),3)
```

Output: Returns the computation of the cosine of a 30-degree angle, which is converted to radians before being passed to the COS function. The output value is rounded to three decimals: `0.866`.

Column reference example:

```
cos(X)
```

Output: Returns the cosine of the radians values in `X` column.

Syntax and Arguments

```
cos(numeric_value)
```

Argument	Required?	Data Type	Description

numeric_value	Y	string, decimal, or integer	Name of column, Decimal or Integer literal, or function returning those types to apply to the function

For more information on syntax standards, see *Language Documentation Syntax Notes*.

numeric_value

Name of the column, Integer or Decimal literal, or function returning that data type to apply to the function.

- Missing input values generate missing results.
- Literal numeric values should not be quoted. Quoted values are treated as strings.
- Multiple columns and wildcards are not supported.

Usage Notes:

Required?	Data Type	Example Value
Yes	String (column reference) or Integer or Decimal literal	`0.5`

Examples

> **Tip:** For additional examples, see *Common Tasks*.

Example - Trigonometry functions

This example illustrates how to apply basic trigonometric functions to your transformations.

Functions:

Item	Description
SIN Function	Computes the sine of an input value for an angle measured in radians. The value can be a Decimal or Integer literal or a reference to a column containing numeric values.
COS Function	Computes the cosine of an input value for an angle measured in radians. The value can be a Decimal or Integer literal or a reference to a column containing numeric values.
TAN Function	Computes the tangent of an input value for an angle measured in radians. The value can be a Decimal or Integer literal or a reference to a column containing numeric values.

The following functions are computed using the above functions:

- **Cotangent.** Computed as 1/TAN.
- **Secant.** Computed as 1/COS.
- **Cosecant.** Computed as 1/SIN.

Also:

Item	Description
ROUND Function	Rounds input value to the nearest integer. Input can be an Integer, a Decimal, a column reference, or an expression. Optional second argument can be used to specify the number of digits to which to round.
RADIANS Function	Computes the radians of an input value measuring degrees of an angle. The value can be a Decimal or Integer literal or a reference to a column containing numeric values.

Source:

In the following sample, input values are in degrees:

X
-30
0
30
45
60
90
120
135
180

Transformation:

In this example, all values are rounded to three decimals for clarity.

First, the above values in degrees must be converted to radians.

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	round(radians(X), 3)
Parameter: New column name	'rX'

Sine:

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	round(sin(rX), 3)
Parameter: New column name	'SINrX'

Cosine:

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	round(cos(rX), 3)
Parameter: New column name	'COSrX'

Tangent:

Transformation Name	`New formula`
Parameter: Formula type	`Single row formula`
Parameter: Formula	`round(tan(rX), 3)`
Parameter: New column name	`'TANrX'`

Cotangent:

Transformation Name	`New formula`
Parameter: Formula type	`Single row formula`
Parameter: Formula	`round(1 / tan(rX), 3)`
Parameter: New column name	`'COTrX'`

Secant:

Transformation Name	`New formula`
Parameter: Formula type	`Single row formula`
Parameter: Formula	`round(1 / cos(rX), 3)`
Parameter: New column name	`'SECrX'`

Cosecant:

Transformation Name	`New formula`
Parameter: Formula type	`Single row formula`
Parameter: Formula	`round(1 / sin(rX), 3)`
Parameter: New column name	`'CSCrX'`

Results:

X	rX	COTrX	SECrX	CSCrX	TANrX	COSrX	SINrX
-30	-0.524	-1.73	1.155	-1.999	-0.578	0.866	-0.5
0	0	*null*	1	*null*	0	1	0
30	0.524	1.73	1.155	1.999	0.578	0.866	0.5
45	0.785	1.001	1.414	1.415	0.999	0.707	0.707
60	1.047	0.578	1.999	1.155	1.731	0.5	0.866
90	1.571	0	-4909.826	1	-4909.826	0	1
120	2.094	-0.577	-2.001	1.154	-1.734	-0.5	0.866
135	2.356	-1	-1.414	1.414	-1	-0.707	0.707
180	3.142	2454.913	-1	-2454.913	0	-1	0