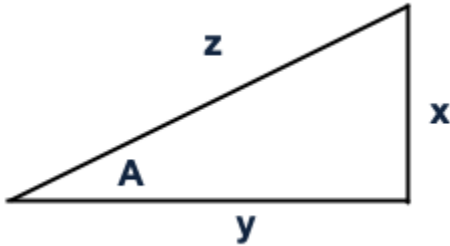


# COS Function

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
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numeric_value	Y	string, decimal, or integer	Name of column, Decimal or Integer literal, or function returning those types to apply to the function
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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. All of the functions take inputs in radians.

- **Sine.** See *SIN Function*.
- **Cosine.** See *COS Function*.
- **Tangent.** See *TAN Function*.
- **Cotangent.** Computed as 1/TAN.
- **Secant.** Computed as 1/COS.
- **Cosecant.** Computed as 1/SIN.

### 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.

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

Sine:

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

Cosine:

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

Tangent:

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	<code>round(tan(rX), 3)</code>
<b>Parameter: New column name</b>	'TANrX'

Cotangent:

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

Secant:

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

Cosecant:

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	<code>round(1 / sin(rX), 3)</code>
<b>Parameter: New column name</b>	'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	<i>null</i>	1	<i>null</i>	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