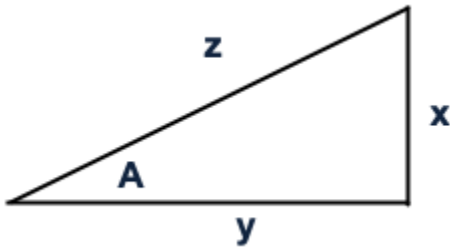


TAN Function

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.



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

$$\tan(A) = x/y$$

The cotangent of angle A is $1/\tan(A)$, or:

$$\cot(A) = 1/\tan(A) = y/x$$

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(tan(radians(30)), 3)
```

Output: Returns the computation of the tangent of a 30-degree angle, which is converted to radians before being passed to the `tan` function. The output value is rounded to three decimals: 0.577.

Column reference example:

```
tan(x)
```

Output: Returns the tangent of the radians values in `x` column.

Syntax and Arguments

```
tan(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.

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

Sine:

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

Cosine:

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

Tangent:

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

Cotangent:

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

Secant:

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

Cosecant:

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	<code>round(1 / sin(rX), 3)</code>
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	<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