

# 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.

- A unit of 1 **radian** identifies the angle of a circle where the radius of the circle equals the length of the arc on the circle for that angle. This value corresponds to approximately 57.3 degrees.
- Input units are in degrees.
- You can convert from radians to degrees. For more information, see *DEGREES 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(radians(57.2728),4)
```

**Output:** Returns the computation in radians of 57.2728 rounded to four digits, which is 1.0000.

### Column reference example:

```
radians(myDegrees)
```

**Output:** Generates the new `myRads` column containing the conversion of the values in `MyDegrees` column to radians.

## Syntax and Arguments

```
radians(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 | 10            |

## Examples

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

### Example - DEGREES and RADIANS functions

This example illustrates to convert values from one unit of measure to the other.

#### Functions:

| Item             | Description  |
|------------------|--|
| DEGREES Function | Computes the degrees of an input value measuring the radians of an angle. The value can be a Decimal or Integer literal or a reference to a column containing numeric values.                                |
| 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.                                    |
| 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. |

#### Source:

In this example, the source data contains information about a set of isosceles triangles. Each triangle is listed in a separate row, with the listed value as the size of the non-congruent angle in the triangle in degrees.

You must calculate the measurement of all three angles of each isosceles triangle in radians.

| triangle | a01 |
|----------|-----|
| t01      | 30  |
| t02      | 60  |
| t03      | 90  |
| t04      | 120 |
| t05      | 150 |

#### Transformation:

You can convert the value for the non-congruent angle to radians using the following:

|                                   |                        |
|-----------------------------------|------------------------|
| <b>Transformation Name</b>        | New formula            |
| <b>Parameter: Formula type</b>    | Single row formula     |
| <b>Parameter: Formula</b>         | ROUND(RADIANS(a01), 4) |
| <b>Parameter: New column name</b> | 'r01'                  |

Now, calculate the value in degrees of the remaining two angles, which are congruent. Since the sum of all angles in a triangle is 180, the following formula can be applied to compute the size in degrees of each of these angles:

|                                |                    |
|--------------------------------|--------------------|
| <b>Transformation Name</b>     | New formula        |
| <b>Parameter: Formula type</b> | Single row formula |

|                                   |                   |
|-----------------------------------|-------------------|
| <b>Parameter: Formula</b>         | $(180 - a01) / 2$ |
| <b>Parameter: New column name</b> | 'a02'             |

Convert the above to radians:

|                                   |  |
|-----------------------------------|--|
| <b>Transformation Name</b>        | New formula                            |
| <b>Parameter: Formula type</b>    | Single row formula                     |
| <b>Parameter: Formula</b>         | $\text{ROUND}(\text{RADIANS}(a02), 4)$ |
| <b>Parameter: New column name</b> | 'r02'                                  |

Create a second column for the other congruent angle:

|                                   |  |
|-----------------------------------|--|
| <b>Transformation Name</b>        | New formula                            |
| <b>Parameter: Formula type</b>    | Single row formula                     |
| <b>Parameter: Formula</b>         | $\text{ROUND}(\text{RADIANS}(a02), 4)$ |
| <b>Parameter: New column name</b> | 'r03'                                  |

To check accuracy, you sum all three columns and convert to degrees:

|                                   |  |
|-----------------------------------|--|
| <b>Transformation Name</b>        | New formula                            |
| <b>Parameter: Formula type</b>    | Single row formula                     |
| <b>Parameter: Formula</b>         | $\text{ROUND}(\text{RADIANS}(a02), 4)$ |
| <b>Parameter: New column name</b> | 'checksum'                             |

### Results:

After you delete the intermediate columns, you see the following results and determine the error in the checksum is acceptable:

| triangle | a01 | r03    | r02    | r01    | checksum |
|----------|-----|--------|--------|--------|----------|
| t01      | 30  | 1.3095 | 1.3095 | 0.5238 | 179.9967 |
| t02      | 60  | 1.0476 | 1.0476 | 1.0476 | 179.9967 |
| t03      | 90  | 0.7857 | 0.7857 | 1.5714 | 179.9967 |
| t04      | 120 | 0.5238 | 0.5238 | 2.0952 | 179.9967 |
| t05      | 150 | 0.2619 | 0.2619 | 2.6190 | 179.9967 |