

# ROUND Function

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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.

- When rounding to nearest integer, decimal values that are  $x.5$  or more are rounded to  $x+1$ .

**NOTE:** This function changes the actual data of the value. If you just want to change how the data is formatted for display, please use the NUMFORMAT function. See *NUMFORMAT 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(2.5)
```

**Output:** Rounds the input value to the nearest integer: 3.

### Expression example:

```
round(MyValue + 2.5)
```

**Output:** Rounds to the nearest integer the sum of 2.5 and the value in the `MyValue` column.

### Numeric literal example:

```
round(pi(), 4)
```

**Output:** Rounds pi to four decimal points: 3.1416.

## Syntax and Arguments

```
round(numeric_value, integer_value)
```

Argument	Required?	Data Type	Description
numeric_value	Y	string, decimal, or integer	Name of column or Decimal or Integer literal to apply to the function
integer_value	N	integer	Number of digits to which to round. <ul style="list-style-type: none"> <li>• Default is 0, which rounds to the nearest integer.</li> <li>• Negative integer values can be applied.</li> </ul>

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

### numeric\_value

Name of the column, numeric literal, or numeric expression.

- 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	2 . 5

### integer\_value

Number of digits to which to round the first argument of the function.

- Positive values values truncate to the right of the decimal point.
- Negative values truncate to the left of the decimal point.
- Missing input values generate missing results.

#### Usage Notes:

Required?	Data Type	Example Value
No	Integer literal	3

## Examples

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

### Example - Exponential functions

This example demonstrates how the rounding functions work together.

#### Functions:

Item	Description
FLOOR Function	Computes the largest integer that is not more than the input value. Input can be an Integer, a Decimal, a column reference, or an expression.

CEILING Function	Computes the <b>ceiling</b> of a value, which is the smallest integer that is greater than the input value. Input can be an Integer, a Decimal, a column reference, or an expression.
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.
MOD Function	Returns the modulo value, which is the remainder of dividing the first argument by the second argument. Equivalent to the % operator.

**Source:**

rowNum	X
1	-2.5
2	-1.2
3	0
4	1
5	1.5
6	2.5
7	3.9
8	4
9	4.1
10	11

**Transformation:**

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	FLOOR(X)
<b>Parameter: New column name</b>	'floorX'

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	CEILING(X)
<b>Parameter: New column name</b>	'ceilingX'

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	ROUND (X)
<b>Parameter: New column name</b>	'roundX'

<b>Transformation Name</b>	New formula
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<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	(X % 2)
<b>Parameter: New column name</b>	'modX'

### Results:

rowNum	X	modX	roundX	ceilingX	floorX
1	-2.5		-2	-2	-3
2	-1.2		-1	-1	-2
3	0	0	0	0	0
4	1	1	1	1	1
5	1.5		2	2	1
6	2.5		3	3	2
7	3.9		4	4	3
8	4	0	4	4	4
9	4.1		4	5	4
10	11	1	11	11	11

### Example - RANDBETWEEN and PI and ROUND functions

This example illustrates how you can apply functions to generate random numeric data in your dataset.

### Functions:

Item	Description
RANDBETWEEN Function	Generates a random integer between a low and a high number. Two inputs may be Integer or Decimal types, functions returning these types, or column references.
PI Function	The PI function generates the value of pi to 15 decimal places: 3.1415926535897932.
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.
TRUNC Function	Removes all digits to the right of the decimal point for any value. Optionally, you can specify the number of digits to which to round. Input can be an Integer, a Decimal, a column reference, or an expression.
POW Function	Computes the value of the first argument raised to the value of the second argument.

### Source:

In the following example, a company produces 10 circular parts, the size of which is measured in each product's radius in inches.

prodId	radius_in
p001	1
p002	2
p003	3
p004	4

p005	5
p006	6
p007	7
p008	8
p009	9
p010	10

Based on the above data, the company wants to generate some additional sizing information for these circular parts, including the generation of two points along each part's circumference where quality stress tests can be applied.

**Transformation:**

To begin, you can use the following steps to generate the area and circumference for each product, rounded to three decimal points:

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	$\text{ROUND}(\text{PI}() * (\text{POW}(\text{radius\_in}, 2)), 3)$
<b>Parameter: New column name</b>	'area_sqin'

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	$\text{ROUND}(\text{PI}() * (2 * \text{radius\_in}), 3)$
<b>Parameter: New column name</b>	'circumference_in'

For quality purposes, the company needs two tests points along the circumference, which are generated by calculating two separate random locations along the circumference. Since the `RANDBETWEEN` function only calculates using Integer values, you must first truncate the values from `circumference_in`:

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	<code>TRUNC(circumference_in)</code>
<b>Parameter: New column name</b>	'trunc_circumference_in'

Then, you can calculate the random points using the following:

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	<code>RANDBETWEEN(0, trunc_circumference_in)</code>

<b>Parameter: New column name</b>	'testPt01_in'
<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	RANDBETWEEN(0, trunc_circumference_in)
<b>Parameter: New column name</b>	'testPt02_in'

**Results:**

After the trunc\_circumference\_in column is dropped, the data should look similar to the following:

prodId	radius_in	area_sq_in	circumference_in	testPt01_in	testPt02_in
p001	1	3.142	6.283	5	5
p002	2	12.566	12.566	3	3
p003	3	28.274	18.850	13	13
p004	4	50.265	25.133	24	24
p005	5	78.540	31.416	0	0
p006	6	113.097	37.699	15	15
p007	7	153.938	43.982	11	11
p008	8	201.062	50.265	1	1
p009	9	254.469	56.549	29	29
p010	10	314.159	62.832	21	21