LOG Function

Contents:

Computes the logarithm of the first argument with a base of the second argument.

- First argument can be a Decimal or Integer literal or a reference to a column containing numeric values.
- Second argument, the base, must be an Integer value or column reference.

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:

```
log(49, 7)
```

Output: Returns 2.

Column reference example:

```
log(MyValue, 5)
```

Output: Returns the exponent that raises 5 to yield the `MyValue` column.

Syntax and Arguments

```
log(result_numeric_value, base_numeric_value)
```

Argument	Required?	Data Type	Description
result_numeric_value	Y	string, decimal, or integer	Name of column or Decimal or Integer literal that is generated by the LOG function
base_numeric_value	Y	string, decimal, or integer	Name of column or Decimal or Integer literal that serves as the base for computing the LOG function

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

result_numeric_value

Name of the column or numeric literal. Value must be greater than 0.

- 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	49

base_numeric_value

Name of the column or Integer literal that is used for the exponential calculation.

> **NOTE:** This base value must be a positive integer. If this value is not specified, 10 is used as the base value.

- 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
No	String (column reference) or Integer or Decimal literal	7

Examples

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

Example - Exponential functions

The following example demonstrates how the exponential functions work together. These functions include the following:

- EXP - e^X . See *EXP Function*.
- LN - natural logarithm of the above. See *LN Function*.
- LOG - 10^X. See *LOG Function*.
- POW - X^Y. The value X raised to the power Y. See *POW Function*.

Source:

rowNum	X
1	-2
2	1
3	0
4	1
5	2
6	3

7	4
8	5

Transformation:

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	EXP (X)
Parameter: New column name	'expX'

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	LN (expX)
Parameter: New column name	'ln_expX'

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	LOG (X)
Parameter: New column name	'logX'

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	POW (10,logX)
Parameter: New column name	'pow_logX'

Results:

In the following, (null value) indicates that a null value is generated for the computation.

rowNum	X	expX	ln_expX	logX	pow_logX
1	-2	0.1353352832366127	-2	(null value)	(null value)
2	-1	0.1353352832366127	-0.9999999999999998	(null value)	(null value)
3	0	1	0	(null value)	0
4	1	2.718281828459045	1	0	1
5	2	7.3890560989306495	2	0.30102999566398114	1.9999999999999998
6	3	20.085536923187668	3	0.47712125471966244	3
7	4	54.59815003314423	4	0.6020599913279623	3.999999999999999

| 8 | 5 | 148.41315910257657 | 5 | 0.6989700043360187 | 4.999999999999999 |