

# 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:

|                                   |                    |
|-----------------------------------|--------------------|
| <b>Transformation Name</b>        | New formula        |
| <b>Parameter: Formula type</b>    | Single row formula |
| <b>Parameter: Formula</b>         | EXP (X)            |
| <b>Parameter: New column name</b> | 'expX'             |

|                                   |                    |
|-----------------------------------|--------------------|
| <b>Transformation Name</b>        | New formula        |
| <b>Parameter: Formula type</b>    | Single row formula |
| <b>Parameter: Formula</b>         | LN (expX)          |
| <b>Parameter: New column name</b> | 'ln_expX'          |

|                                   |                    |
|-----------------------------------|--------------------|
| <b>Transformation Name</b>        | New formula        |
| <b>Parameter: Formula type</b>    | Single row formula |
| <b>Parameter: Formula</b>         | LOG (X)            |
| <b>Parameter: New column name</b> | 'logX'             |

|                                   |                    |
|-----------------------------------|--------------------|
| <b>Transformation Name</b>        | New formula        |
| <b>Parameter: Formula type</b>    | Single row formula |
| <b>Parameter: Formula</b>         | POW (10,logX)      |
| <b>Parameter: New column name</b> | '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  |