EXAMPLE - POW and SQRT Functions

The following example demonstrates how the `POW` and `SQRT` functions work together to compute the hypotenuse of a right triangle using the Pythagorean theorem.

- `POW` - X^Y . In this case, 10 to the power of the previous one. See *POW Function* .
- `SQRT` - computes the square root of the input value. See *SQRT Function*.

The Pythagorean theorem states that in a right triangle the length of each side (x,y) and of the hypotenuse (z) can be represented as the following:

$z^2 = x^2 + y^2$

Therefore, the length of z can be expressed as the following:

$z = sqrt(x^2 + y^2)$

Source:

The dataset below contains values for x and y:

X	Y
3	4
4	9
8	10
30	40

Transformation:

You can use the following transformation to generate values for z^2.

> **NOTE:** Do not add this step to your recipe right now.

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	(POW(x,2) + POW(y,2))
Parameter: New column name	'Z'

You can see how column Z is generated as the sum of squares of the other two columns, which yields z^2.

Now, edit the transformation to wrap the value computation in a `SQRT` function. This step is done to compute the value for *z*, which is the distance between the two points based on the Pythagorean theorem.

Transformation Name	New formula
Parameter: Formula type	Single row formula
Parameter: Formula	SQRT((POW(x,2) + POW(y,2)))

Parameter: New column name	'Z'

Results:

X	Y	Z
3	4	5
4	9	9.848857801796104
8	10	12.806248474865697
30	40	50