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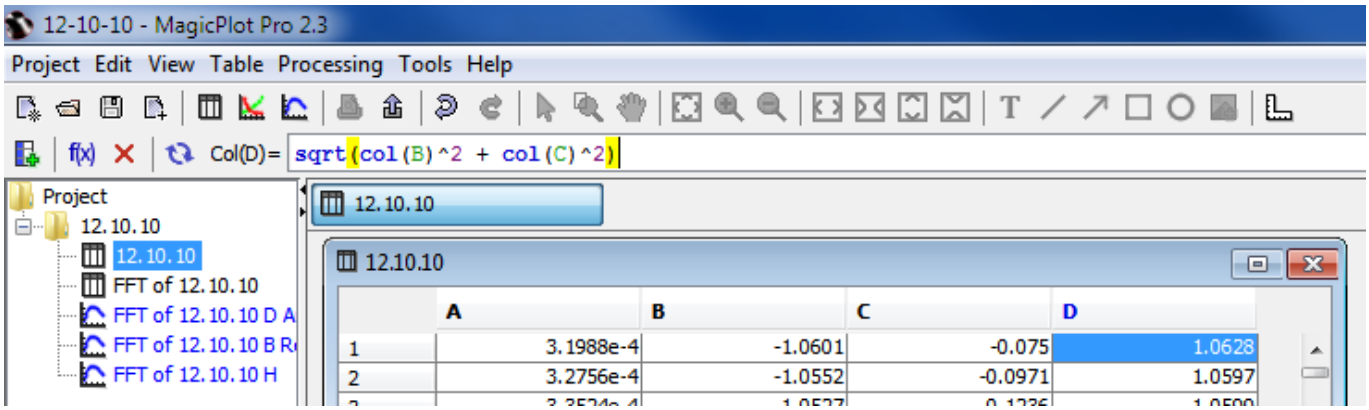
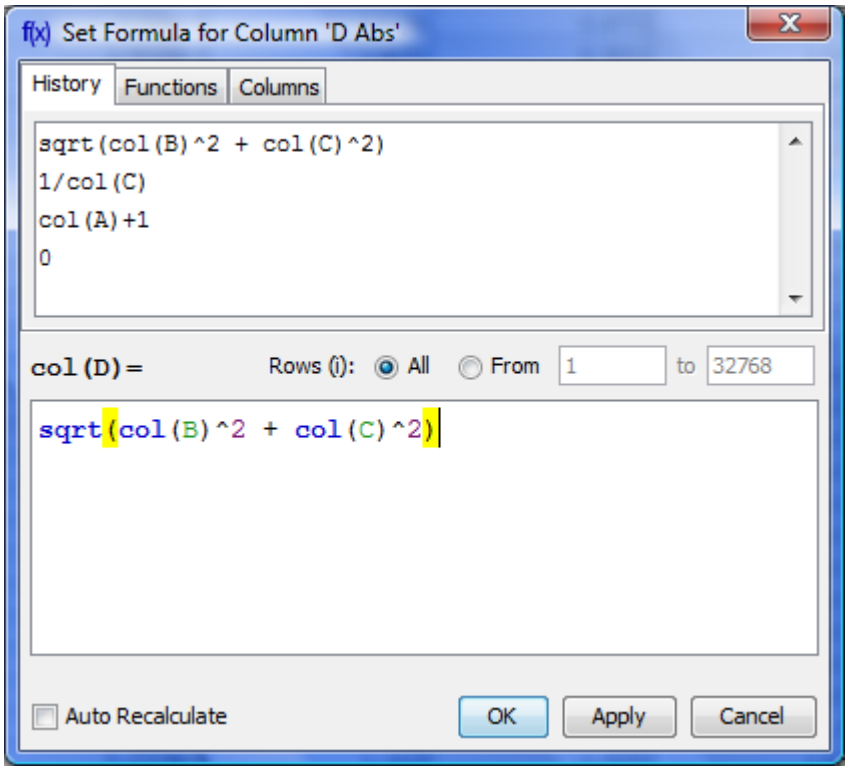
Setting Column Formula

There are two ways to set formula for column evaluation:

1. Select column and write formula in formula string.



2. Use `Table → Set Column Formula` menu item to open column formula dialog window. See Expression Syntax for details.



Row Index

Variable `i` contains the current row index. Rows are enumerated from 1.

Rows Evaluation Order

Rows are always evaluated one after another from the first to the last in the specified range. Accordingly the row number `i` is incremented after each step.

Example

- You can use this behavior to calculate factorial: set 1 in the first row of column A and after that set formula `cell(A, i-1) * i` and rows interval from 2 to `100`. Note that formula is to be set for rows beginning from the second, and not from the first. You will get the factorial of row number (`i`).

Using Table Data

There are two functions to obtain current table cell values in formula:

- `col(A)` – returns the value of cell in column A in the current (i-th) row. Equivalent to `cell(A, i)`.
- `cell(A, 3)` – returns the value in column A and row 3.

You can use either upper-case letters (A…Z, e.g. `col(B)`) or numbers (`1, 2, 3,..`, e.g. `col(1)`) in columns numeration in arguments of `col` and `cell` functions.

Example

- `col(A) + 15 + cell(B, i+1)`

Auto Recalculation on Data Change

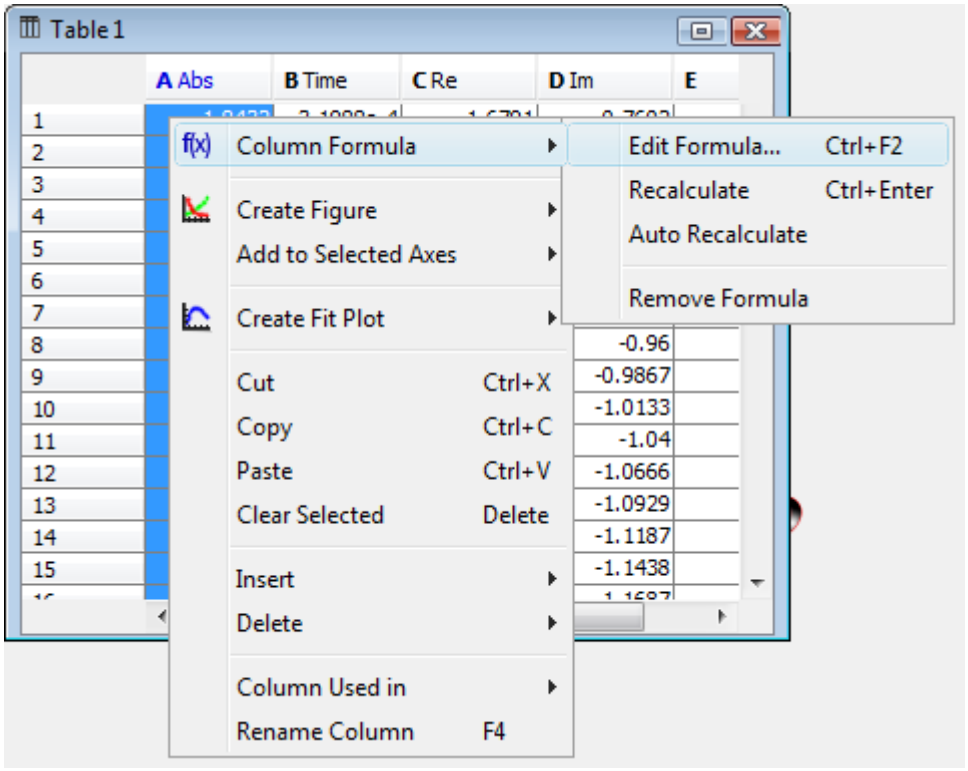
MagicPlot can automatically recalculate formula when data in used columns are changed. Set `Auto Recalculate` checkbox to enable this feature.

Example

- Set formula `col(A)*2` for column B and set `Auto Recalculate` checkbox. Column B will be recalculated if you change values in column A or column A is updated by other formula or processing algorithm (e.g. integral, derivative of other column).

Formula Menu in Column Context Menu

You can edit column formula and change auto recalculation mode from column context menu or menu `Table`. Select exactly one column and open context menu to view this menu items.



“Argument is out of range at row #” Warning

Some mathematical functions can be defined only on a certain interval. For example, square root (`sqrt(x)`) is not defined for negative numbers (all calculations in MagicPlot are made in real numbers, not complex). Hence if the argument of `sqrt` is negative, a Not-a-Number (NaN) is returned. If a NaN value occurs in some part of formula, the result of calculation will also be a NaN, and corresponding table cells will be empty.

The calculations are not terminated if NaN value occurs in some row(s).

In some cases you may want to check if a NaN values occurs in calculations. MagicPlot shows the warning “*Argument is out of range at row #*”. This row number is the **first** row in which NaN value was returned. MagicPlot also highlights the function or operator which first produces NaN value.

See Also

- Expression Syntax

From:
https://magicplot.com/wiki/ - **MagicPlot Manual**

Permanent link:
https://magicplot.com/wiki/set_column_formula

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