

# MatDeck tips

## Introduction: Canvas

The formula itself must be placed inside a canvas. To do so press the ribbon tab called Insert then the canvas icon and then left mouse click on the document where you want to place the canvas.

## Basic

**Double left mouse click** or **Left mouse click + Space bar**—when used in a canvas it creates an empty Math object.

+ |

**:=** - the assignment of variable values; assign a value to a variable  $a$  with code `a := value`

**Ctrl. + =** - when used in a Math object stops the object from calculating; use this combination when you want to create a presentational formula that is excluded from calculation;

**V + =** - assign a value to a variable; assign a value to an already created variable;

`a := 0`

`a = 4`

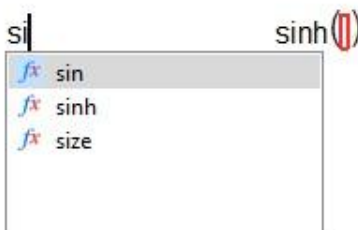
`a = 4`

**=** - displaying the variable value; display the value stored in the variable  $a$  using the code `a =`

`a := 5`    `a = 5`

**Alt** – continue writing the function name; use Alt to insert multi character commands or to skip auto suggestion and continue with typing; while you type in the canvas auto suggestion will display all functions that contain the inserted combination of characters, to skip it just use Alt and continue with typing;

**F1** – place cursor in function so you can be able to read



it function in Functions tab examples;

**Ctrl + U** – make variable unit / make unit variable; the default system state istoshowunits in math, when you type in a math object it is considered a variable by default, to make it a unit use Ctrl + U combination while cursor is in the math object

$$\text{Ohm} = \text{A}^{-2} \text{s}^{-3} \text{kg m}^2 \quad \text{Ohm} = \text{Ohm}$$

**Alt + /** - create a fraction;  $\frac{3}{5}$

**Alt + -** - value or expression to become negative; the negative of existing expression or variable value, when the cursor is in front of the variable or expression use Alt – combination to change the sign of it;

$$\begin{array}{cc} a & 5 \\ -a & -5 \end{array}$$

**Ctrl + M** – to turn superscript mode on or off;

$$O^2$$

**Ctrl + B** – to turn subscript mode on or off;

$$O_2$$

**Shift + 6** – enter a power node in math objects;

$$3^2 + 2^3$$

Superscripts and subscripts can be added before or after the pivot letter, just place the cursor on the preferred side and use above key combination.

$$\begin{array}{cc} 1 & 3 \\ & O \\ 2 & 4 \end{array}$$


**Ctrl + mouse scroll** – zoom in, zoom out;

**\* +\*** - to create multiplying operators whose sign is not visible; when the cursor is behind the value or variable use \* + \* combination to create a multiplying operation without a multiplying sign;

**Ctrl + F** – exclude math object (formula) from using mathematical rules; use this key combination when you want to type formulas for demonstration purpose, without applying mathematical rules (there is no operators, variables, fractions, functions, ...);

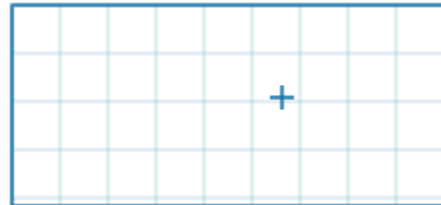
$$3+4 = \sin(x) - 2i \quad \sin(x)^2 + \cos(x)^2 = 5$$

**Ctrl + E**—evaluate script shortcut key; use this key combination after you have created or changed the script code to initiate a calculation of it, this key combination is an

alternative for pressing  icon;

```
fn()  
{  
  1 int i:=0  
  while(i<10)  
  {  
    2 { 1 i++  
  }  
}
```

**Ctrl + G**— turn on/off grid in canvas;



## Vectors and matrix

**Vector** – to create an empty vector with the size 2x1; type command vector (to create empty vector);

$$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

**Matrix** – to create an empty matrix with the size 2x2; type command matrix (to create empty matrix);

$$\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

**Space** – while the cursor is in one of the empty fields of row vector/matrix use Space to add one column to the right;

**Enter** – while cursor is in one of the empty fields of column vector/matrix use Enter to add one row under the selected row;

$$\begin{bmatrix} 1 & 2 & 0 & 0 & 4 \end{bmatrix} \quad \begin{bmatrix} 1 & 2 & 0 \\ 3 & 0 & 0 \end{bmatrix}$$
$$\begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix} \quad \begin{bmatrix} 1 & 2 \\ 3 & 0 \\ 0 & 0 \end{bmatrix}$$

**Ctrl + Space**—while cursor is in one of the empty fields of row vector/matrix use Ctrl + Space combination to delete the selected column;

**Ctrl + Enter** –while cursor is in one of the empty fields of column vector/matrix use Ctrl + Enter combination to delete the selected row;

[—to create a subscript function to return the element of current inputted vector/matrix in current position; when the cursor is behind the vector/matrix use [ character to create a subscript function and enter the position you want to extract the value from;

$$\begin{bmatrix} 1 \\ 2 \end{bmatrix} [1] = 2 \quad \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} [2] = 3$$

## Comparison operators

**Alt + = + =**— to create a comparison operator equal to; when the cursor is behind the value or variable use Alt + = + = combination to create equal operator;

$$a ==$$

**< + = -** - to create a comparison operator less than or equal to; when the cursor is behind the value or variable use < + = combination to create less than or equal to operator;

$$a <=$$

**> + = -** - to create comparison operator greater than or equal to; when the cursor is behind the value or variable use > + = combination to create greater than or equal to operator;

$$a >=$$

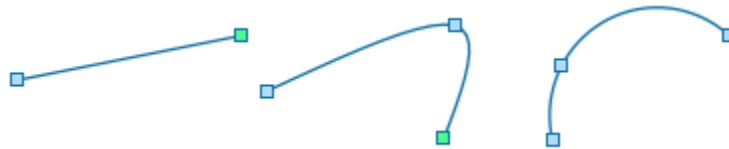
**< + Space**—to create comparison operator less than; when the cursor is behind the value or variable use < + Space combination to create less than operator;

**> + Space**—to create comparison oper. `a <`   `ater than; when the cursor is behind the value or variable use > + Space combination to create greater than operator;`

`a >`  

## Drawing and shapes

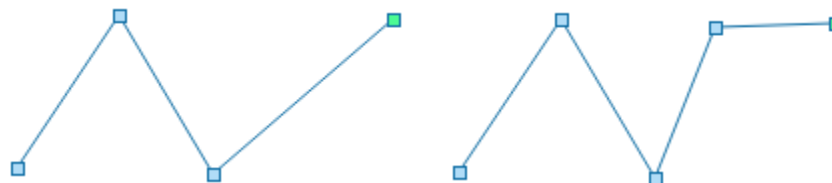
**Ctrl + Left mouse press** – to move the green dots without making an additional line; use this combination while you draw lines (poly-lines and arc) when you want to move the last dot;



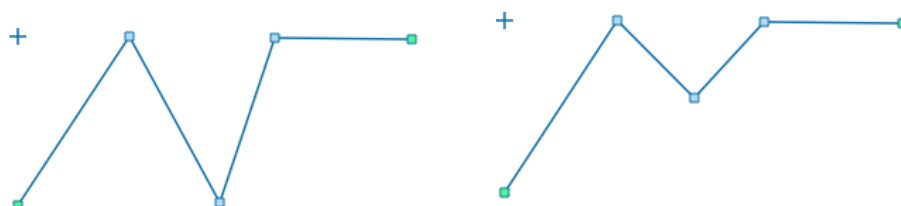
**Right mouse press** – use it when you want to delete oneline dot; just press right mouse click on the dot you want to delete;



**Ctrl + Left mouse press** – create two dots from one; this option refers only to blue dots, when you want to create a new one between existing dots

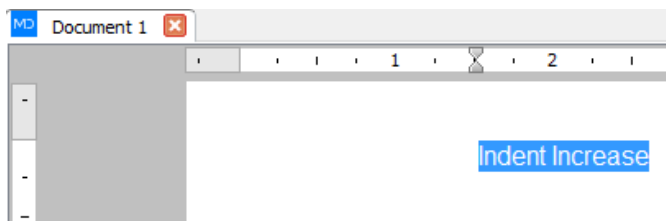


**Left mouse press and hold**— if used on blue dots, it moves them; if used on green dots, it creates new line segment;

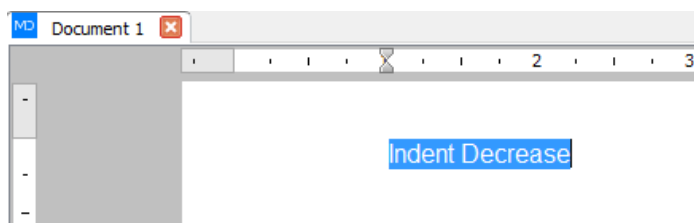


## Text

**Tab**- To increase text indent select text and press Tab key

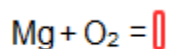


**Shift + Tab** – To decrease text indent select text, hold Shift key and press Tab key



## Chemistry

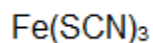
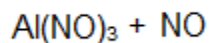
When you type a chemical equation use **Ctrl + =** combination to create equal sign and start typing right side of equation



To transform equal sign to arrow sign, position mouse cursor above the sign and use **Right mouse button**.



When your chemical formula contains brackets, use **Ctrl + F** combination when you start to type compound. Don't forget to use the same combination after compound is typed, elsewhere formula parsing won't be correct.



## Script

To turn script editor on or off in a document use Ctrl + I.

```
1 function()
2 {
3   pom := 0
4
5   for(i := 0; i < n; i += 1)
6   {
7     pom += i
8   }
9 }
```

## Equations


The formula itself must be placed inside a canvas. To do so press the ribbon tab called Insert then the canvas icon and then left mouse click on the document where you want to place the canvas.

MatDeck is dedicated to mathematical expressions to be evaluated. There are several options when editing equations and expressions for presentational purposes, which are not evaluated. The alternative method for writing equations and/or expressions that are excused from evolution has many different formats.

Switch on or off **Math Style** within the **Math Tab**, to choose whether you want a graphical representation of functions and operators or not.

**Double mouse left click** or **Left mouse click + Space bar**—when used in a canvas creates an empty Math object.

**Ctrl + F** —excludes the math object (formula) from using mathematical rules; use this key combination when you want to type formulas for demonstrational purposes, without applying any mathematical rules (there are no operators, variables, fractions, functions,

...). When Ctrl+F is active, the background in the Math Object becomes grey  .

Ctrl+F mode can be used in any node, however in order to enter graphical math elements Ctrl+F must first be deactivated;

$$\sum_{n = -\infty}^{\infty} x(n)$$

**Ctrl + =** - when used inside a Math object stops the selected object from calculating; use this combination when you want to create a presentational formula that is excluded from calculation; In order to use Ctrl+=, Ctrl+F mode must first be deactivated. After Ctrl+=, Ctrl+F mode can be activated again.

**\* +\*** - to create multiplying operators whose sign is not visible; when the cursor is behind the value or variable use the \* + \* combination to create a multiplying operation without a multiplying sign.  $2 \times$

**Alt + /** - create a fraction;  $\frac{x}{y}$

**Shift + 6** – enter a power node in math objects;  $e^{-t}$

**Ctrl + M** – to turn superscript mode on or off;

**Ctrl + B** – to turn subscript mode on or off;  $x_n$

**Alt + -** - selected value or expression to become negative; the negative of an existing expression or variable value, when the cursor is in front of the variable or expression use the Alt – combination to change the sign of it;

Use the **Left** and **Right Arrows** to move from node to node.

**Right mouse click** on a Math/Equation object, then select **Exclude** from evaluation.











$$\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi} \quad f(x) = \sqrt{\left| \sum_{n=-\infty}^{\infty} \frac{y(n)}{x(n)} \right|}$$

Set style, color, and size of letters in equations independently by using the font editing tools present.

$$f(x) = \sqrt{\left| \sum_{n=-\infty}^{\infty} \frac{y(n)}{x(n)} \right|}$$



## Global Keyboard Shortcut

Keyboard combination	Action	MatDeck icon
Ctrl + N	Create new document	 New
Ctrl + O	Open document	 Open
Ctrl + S	Save current document	 Save
Ctrl + W	Close current document	 Close
Ctrl + P	Print current document	 Print
Ctrl + A	Select all document items	 Select All
Ctrl + Z	Undo	 Undo
Ctrl + Y	Redo	 Redo
Ctrl + C	Copy	 Copy
Ctrl + V	Paste	 Paste