

Dictating mathematics into Scientific notebook using Caster

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1 Introduction

- All of these bindings can be easily changed by modifying modifying `mathfly/config/scientific_notebook.toml` in any text editor or saying "configure Scientific Notebook" while the module is enabled.

- (option a | option b) means that both commands will do the same thing.
- Square brackets means that the word(s) inside are optional, the command will work with or without them.

2 Basics

new file	Create a new file
open file	Open a file
save file	Save a file
save as	Save as
print file	Print current document
export document	Export current document as .rtf
page preview	View a preview of the current document
toggle math	Inline mathematics
body math	Block mathematics
toggle text	Inline text
body text	Block text
evaluate	Evaluate expression
begin [bulleted] list	Begin a bulleted list
begin numbered list	Begin a numbered list
end list	End the current list
insert normal text	normal text
insert big text	large text
insert small text	small text
insert bold text	bold text
insert italic text	<i>bold text</i>
insert bold symbols	boldsymbols
insert centred text	Insert centred text
insert left text	Insert left justified text
insert right text	Insert right justified text
insert quotation	Insert a quotation
insert heading [one]	Large heading
insert heading two	Smaller heading
insert heading three	Smaller heading
insert heading four	Smaller heading
insert heading five	Smaller heading

3 Miscellaneous

<code>fraction</code>	Creates a fraction. anything highlighted will form the numerator.
<code>over</code>	Creates a fraction with the previous element as the numerator (e.g. "five over three")
<code>(super [script] to the power)</code>	Superscript
<code>sub [script]</code>	Subscript
<code>squared</code>	Superscript 2
<code>cubed</code>	Superscript 3
<code>inverse</code>	Superscript -1
<code>(parens parentheses)</code>	Parentheses
<code>square brackets</code>	Square brackets
<code>curly brackets</code>	Curly brackets
<code>absolute</code>	Create two bars and moves inside them
<code>degrees</code>	Insert a degree symbol
<code>summation</code>	\sum
<code>product</code>	\prod
<code>limit</code>	\lim
<code>label above</code>	Add a label above the selected text
<code>label below</code>	Add a label below the selected text

4 Letters

4.1 Greek

By default, all of these commands must be prefixed with "greek" for lowercase or "greek big" for uppercase. This behaviour can be changed by modifying `greek_prefix` and `capitals_prefix`. Where relevant I have provided pronunciation tips for best results.

<code>alpha</code>	α	
<code>beta</code>	β	beater
<code>gamma</code>	γ	Γ
<code>delta</code>	δ	Δ
<code>epsilon</code>	ε	
<code>zeta</code>	ζ	

eta	η		eater
theta	θ	Θ	they-tah
iota	ι		
kappa	κ		
lambda	λ	Λ	
mu	μ		moo
nu	ν		new
xi	ξ	Ξ	zee
pi	π	Π	
rho	ρ		
sigma	σ	Σ	
tau	τ		
upsilon	υ	Υ	
phi	ϕ	Φ	
chi	χ		kie
psi	ψ	Ψ	sigh
omega	ω	Ω	

4.2 Accents

These commands add accents above the highlighted text, or create an empty accent if nothing is highlighted.

accent hat	\hat{a}
accent tilde	\tilde{a}
accent dot	\dot{a}
accent double dot	\ddot{a}
accent bar	\bar{a}
accent arrow	\vec{a}

5 Symbols

[square] root	$\sqrt[n]{x}$
integral	\int
double integral	\iint

triple integral	\iiint
times	\times
divide	\div
C dot	\cdot
plus or minus	\pm
partial	∂
infinity	∞
dot dot dot	\dots
nabla	∇
greater [than] [or] equal [to]	\geq
less [than] [or] equal [to]	\leq
not equal [to]	\neq
approximately [equal] [to]	\approx
proportional [to]	\propto
preference less [than]	\prec
preference less equal	\preceq
preference greater [than]	\succ
preference greater equal	\succeq
sine	\sin
cosine	\cos
tangent	\tan
secant	\sec
cosecant	\csc
cotangent	\cot
arc sine	\arcsin
arc cosine	\arccos
arc tan	\arctan
hyperbolic sine	\sinh
hyperbolic cosine	\cosh
hyperbolic tangent	\tanh
hyperbolic cotangent	\coth
degree	\deg
determinant	\det
dimension	\dim
exponential	\exp
(natural (log logarithm) log natural)	\ln
logarithm	\log
argument	\arg

maximum	\max
minimum	\min
(modulo modulus)	mod
supremum	\sup
infimum	\inf
probability	\Pr
there exists	\exists
member [of]	\in
for all	\forall
subset	\subset
superset	\supset
strict subset	\subsetneq
strict superset	\supsetneq
intersection	\cap
union	\cup
logic and	\wedge
logic or	\vee
logic not	\neg
left arrow	\leftarrow
right arrow	\rightarrow
up arrow	\uparrow
down arrow	\downarrow
left right arrow	\leftrightarrow
maps to	\mapsto
oh plus	\oplus
oh times	\otimes
big oh plus	\bigoplus
big oh times	\bigotimes
diagonal dots	\ddots
horizontal dots	\dots
vertical dots	\vdots

6 Fractions

There are a few ways of easily inserting fractions:

- Use the "fraction" command, and navigate through it using directions.

- Use the "over" command, which will build a fraction with the previous element as the numerator. e.g. "x-ray squared over five".
- For denominators up to 10, use their natural names, providing a number for the numerator, e.g. "five thirds".

7 Matrices

- To insert a matrix of a particular size, use the matrix command, e.g. "matrix three by one".
- To add or remove columns and rows, Use the command "add/remove matrix column/row".
- Matrices can be encased in brackets as expected, E.g. "parens matrix three by three".

8 Units

These commands insert common scientific units. By default, all of them must be prefixed with "unit", so for example "unit cubic feet" produces ft³.

- **Activity**— Becquerels, Curies
- **Amount**— Attomoles, Examoles, Femtomoles, Gigamoles, Kilomoles, Megamoles, Micromoles, Millimoles, Moles, Nanomoles, Petamoles, Picomoles, Teramoles
- **Area**— Acres, Hectares, Square feet, Square inches, Square metres
- **Current**— Amperes, Kiloamperes, Microamperes, Milliamperes, Nanoamperes
- **Capacitance**— Farads, Microfarads, Millifarads, Nanofarads, Picofarads
- **Charge**— Coulombs
- **Conductance**— Kilosiemens, Microsiemens, Millisiemens, Siemens

- **Potential difference**— Kilovolts, Megavolts, Microvolts, Millivolts, Nanovolts, Picovolts, Volts
- **Resistance**— Gigaohms, Kiloohms, Megaohms, Milliohms, Ohms
- **Energy**— British thermal unit, Calories, Electron volts, Ergs, Gigaelectronvolts, Gigajoules, Joules, Kilocalories, Kilojoules, Megaelectronvolts, Megajoules, Microjoules, Millijoules, Nanojoules
- **Force**— Dynes, Kilonewtons, Meganewtons, Micronewtons, Millinewtons, Newtons, Ounce force, Pound force
- **Frequency**— Exahertz, Gigahertz, Hertz, Kilohertz, Megahertz, Petahertz, Terahertz
- **Illuminance**— Footcandle, Lux, Phot
- **Length**— Angstrom, Attometers, Centimeters, Decimeters, Femtometers, Feet, Inches, Kilometers, Meters, Micrometers, Miles, Millimeters, Nanometers, Picometers
- **Luminance**— Candela, Lumens
- **Magnetic flux**— Maxwells, Microwebers, Milliwebers, Nanowebers, Webers
- **Magnetic flux density**— Gauss, Microteslas, Milliteslas, Nanoteslas, Picoteslas, Teslas, Henries, microhenries, millihenries
- **Mass**— Atomic mass units, Centigrams, Decigrams, Grams, Kilograms, Micrograms, Milligrams, Pounds, Slug
- **Angle**— degrees, Microradians, Milliradians, Minutes of angle, Seconds of angle, Radians, Steradian
- **Power**— Gigawatts, Horsepowers, Kilowatts, Megawatts, Microwatts, Milliwatts, Nanowatts, Watts
- **Pressure**— Atmospheres, Bar, Kilobar, Kilopascals, Megapascals, Micropascals, Millibar, Millimeters of Mercury, Pascals, Torrs
- **Temperature**— Celsius, Fahrenheit, Kelvins

- **Time**— Attoseconds, Days, Femtoseconds, Hours, Microseconds, Milliseconds, Minutes, Nanoseconds, Picoseconds, Seconds, Years
- **Volume**— Cubic feet, Cubic inches, Cubic metres, Gallons, Liters, Milliliters, Pints, Quarts