LaTeX Snippets Comprehensive Reference

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Comprehensive guide for mathematical typesetting

Created from original snippet definitions

1 Introduction

This document explains all snippets from your original file with detailed examples. Snippets are organized by functionality and context awareness.

1.1 Context Functions

Context Detection

```
global
function math(context) {
    return context.scopes.findLastIndex(s => s.startsWith("meta.math")) >
           context.scopes.findLastIndex(s => s.startsWith("comment") ||
           s.startsWith("meta.text.normal.tex"));
}
function notmath(context) {
    return context.scopes.findLastIndex(s => s.startsWith("meta.math")) <=
           context.scopes.findLastIndex(s => s.startsWith("comment") ||
           s.startsWith("meta.text.normal.tex"));
}
endglobal
```

These functions automatically detect whether you're in a math environment or regular text.

2 Table Environments

Table Generator

`table<rows> <cols>` - Creates a full table environment
`table3 4` →

```
\begin{table}[H]
    \centering
    \begin{tabular}{c|c|c|c}
        \toprule
        A1 & A2 & A3 & A4 \\ \midrule
        B1 & B2 & B3 & B4 \\
        C1 & C2 & C3 & C4 \\ \bottomrule
    \end{tabular}
    \caption{caption}
    \label{tab:label}
\end{table}
```

3 Matrix & Array Environments

Matrix Generators

- `ary<rows> <cols>` - Math array environment `ary2 3` → $\begin{matrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{matrix}$
- `bmat<rows> <cols>` - Bracket matrix `bmat2 2` → $\begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$
- `pmat<rows> <cols>` - Parenthesis matrix `pmat2 2` → $\begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix}$

4 Greek Letters & Symbols

Greek Letters

Trigger	Output	Trigger	Output
`;a`	α	`;A`	
`;b`	β	`;B`	
`;g`	γ	`;G`	Γ
`;d`	δ	`;D`	Δ
`;t`	θ	`;T`	Θ
`;s`	σ	`;S`	Σ
`;p`	π	`;P`	Π
`;m`	μ	`;r`	ρ
`;z`	ζ	`;l`	λ
`;o`	ω	`;O`	Ω
`eps`	ϵ	`veps`	ε
`ell`	ℓ	`vt`	ϑ
`vp`	φ	`;;p`	ϕ
`;;;p`	ψ	`;;;P`	Ψ

Mathematical Symbols

Trigger	Output	Trigger	Output
`>=`	$\geq$	`<=`	$\leq$
`!=`	$\neq$		$\approx$
`->`	$\to$	`=>`	$\Longrightarrow$
`:=`	$:=$	`=:`	$=:$
`<>`	$\langle\rangle$	`in`	$\in$
`nin`	$\notin$	`subset`	$\subset$
`subseteq`	$\subseteq$	`supset`	$\supset$
`cup`	$\cup$	`cap`	$\cap$
`circ`	$\circ$	`times`	$\times$
`oplus`	$\oplus$	`otimes`	$\otimes$
`sum`	$\sum$	`prod`	$\prod$
`int`	$\int$	`partial`	∂
`infty`	∞	`nabla`	∇
`forall`	$\forall$	`exists`	$\exists$
`ldots`	$\ldots$	`cdots`	$\cdots$
`varnothing`	$\varnothing$	`therefore`	$\therefore$

5 Formatting & Operators

Formatting Tools

- `//` - Fraction: `a//b` → $\frac{a}{b}$
- `sq` - Square root: `sqx` → $\sqrt{x}$
- `hat` - Hat: `hatx` → $\hat{x}$
- `bar` - Bar: `barx` → $\bar{x}$
- `vec` - Vector: `vecv` → $\vec{v}$
- `mathbf` - Bold: `mathbfx` → $\mathbf{x}$
- `bm` - Bold math: `bmx` → $\boldsymbol{x}$
- `mathcal` - Calligraphic: `Xcal` → $\mathcal{X}$
- `mathscr` - Script: `Sscr` → $\mathscr{S}$
- `mathfrak` - Fraktur: `gfk` → $\mathfrak{g}$

Advanced Operators

- `dint` - Definite integral: `dint` → $\int_{-\infty}^{\infty} \mathrm{d}x$
- `lim` - Limit: `lim` → $\lim_{n\to\infty}$
- `Pr` - Probability: `Pr` → $\Pr$
- `mean` - Expectation: `mean` → $\mathbb{E}$
- `Var` - Variance: `Var` → Var
- `Cov` - Covariance: `Cov` → Cov

6 Text Mode Snippets

Text Specific

- `%--` - Separator line: `%--` → %
- `wrt` - With respect to: `wrt` → w.r.t.
- `iid` - Independent identical: `iid` → i.i.d.
- `wp` - With probability: `wp` → w.p.
- `fig` - Figure environment
- `rmk` - Remark environment
- `dfn` - Definition environment
- `qed` - QED symbol: ■

7 Advanced Structures

Complex Structures

- `split` - Split equations: `split` →

```
\begin{split}
    a &= b \\
    &= c
\end{split}
```

- `cases` - Cases environment: `cases` → $\begin{cases} a & \text{if } b \\ c & \text{otherwise} \end{cases}$
- `opmin` - Minimization problem: `opmin` →

$$\begin{aligned} \min\ & c^\top x \\ & Ax = b \\ & x \geq 0 \end{aligned}$$

- `opPD` - Primal-dual problem:

```
\begin{aligned}{5}
\min~ & c^{\top}x && \max~ & y^{\top}b \\
&Ax = b && & y^{\top}A \leq c^{\top} \\
&x \geq 0 &&
\end{aligned}
```

8 Smart Features

Intelligent Behaviors

- **Automatic context detection**: Snippets know if you're in math/text
- **Smart fractions**: `(a+b)/c` → $\frac{a+b}{c}$
- **Auto-subscripts**: `x_ij` → x_{ij}
- **Auto-superscripts**: `x2` → x^2
- **Vector completion**: `v,` → $\vec{v}$
- **Prime completion**: `f'` → f'
- **Operator detection**: `sin` → sin

9 Complete Reference Table

Snippet	Description
`%--`	Full-width separator line
`wrt`	With respect to (w.r.t.)
`iid`	Independent and identically distributed (i.i.d.)
`wp`	With probability (w.p.)
`opn`	Operator name (`\operatorname`)
`fm`	Inline math ()
`dm`	Display math environment
`<>`	Angle brackets ($\langle\rangle$)
`lr,`	Auto-scaled angle brackets
`lrd`	Auto-scaled parentheses
`{}`	Curly braces
`lra`	Auto-scaled curly braces
`lrq`	Auto-scaled square brackets
`ceil`	Ceiling function
`Ceil`	Auto-scaled ceiling
`flr`	Floor function
`Flr`	Auto-scaled floor
`abs`	Absolute value
`Abs`	Auto-scaled absolute value
`norm`	Norm
`Norm`	Auto-scaled norm
`scup`	Disjoint union
`cup`	Union
`Cup`	Big union
`cap`	Intersection
`Cap`	Big intersection
`Conj`	Conjunction
`Disj`	Disjunction
`sub`	Subset
`nsub`	Not subset
`sube`	Subset or equal
`subn`	Proper subset
`sups`	Superset
`nsup`	Not superset
`supe`	Superset or equal
`supn`	Proper superset

`nlim`	No limits
`lim`	Limit
`lsup`	Limit superior
`linf`	Limit inferior
`prd`	Product
`Prd`	Big product
`coprd`	Coproduct
`pt`	Partial differential
`pdif`	Partial derivative
`dif`	Derivative
`sq`	Square root
`oo`	Infinity
`^oo`	Superscript infinity
`EE`	Existential quantifier
`AA`	Universal quantifier
`o+`	Circle plus
`o.`	Circle dot
`.x`	Times
`inv`	Inverse
`tp`	Transpose
`prp`	Perpendicular
`cp`	Complement
`qs`	Square
`!>`	Mapsto
`dint`	Definite integral
`not`	Logical not
`'`	Prime
`--`	Set minus
`rm`	Roman text
`st`	Star
`**`	Asterisk
`^.`	Dot accent
`dot`	Double dot
`>>`	Much greater
`<<`	Much less
`spt`	Support
`sim`	Similar to
`apx`	Approximately
`bino`	Binomial
`ems`	Empty set
`emph`	Emphasis
`begg`	Begin environment
`idd`	Identity
`quo`	Quotient
`at`	Evaluation bar
`atf`	Autoreference
`hpr`	Hyperreference
`lbl`	Label
`vph`	Vertical phantom
`hom`	Homomorphism
`Obj`	Object
`mor`	Morphism
`__`	Underset
`^^`	Overset
`fk`	Fraktur
`tg`	Triangle