Simple LaTeX

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1 Symbols

- **Escape character:** \esc prints \
- **Implies:** \imp prints $\Rightarrow$
- **Degrees:** \degree prints $^\circ$
- **Proportional:** \proportional prints $\propto$ with appropriate gap
- **Number sets:** \complex, \reals, \rationals, \integers, \naturals prints $\mathbb{C}$, $\mathbb{R}$, $\mathbb{Q}$, $\mathbb{Z}$, and $\mathbb{N}$ respectively, with appropriate gap

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2 Numbers

- **General number:** \num {$num1$} {$num2$} prints $num1 \times 10^{num2}$
- **Power of ten:** \ten {$power$} prints 10^{power}
- **Reporting a figure:** \report {$num1$} {$error$} {$num2$} prints $(num1 \pm error) \times 10^{num2}$

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3 Containers

- **Absolute value:** \abs {num} prints $|num|$
- **Floor:** \floor {num} prints $\lfloor num \rfloor$
- **Ceiling:** \ceil {num} prints $\lceil num \rceil$
- **Brace brackets:** \braces {num} prints $\{num\}$
- **Angular brackets:** \angles {num} prints $\langle num \rangle$
- **Big brackets:** \bigbrac {num} inside $$ $$ prints brackets of appropriate size

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4 Fractions

- **Reciprocal:** \reci {num} prints $\frac{1}{num}$
- **Big fraction:** \bigfrac {$num1$} {$num2$} prints a fraction inside brackets of appropriate size

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5 Presentation

- **Superscript:** num1 \super {$num2$} prints num1^{num2}
- **Subscript:** num1 \sub {$num2$} prints num1$_{num2}$
- **Ordinal numbers:** \st, \nd \rd and \nth print st, nd, rd, threspectively
- **Expression evaluated at a constant value:** \atconstant {exp} {$constant$} prints $(exp)_{constant}$ with brackets of appropriate size
- **Sequence:** \seq {x} {n} prints $x_1, x_2, x_3, \ldots x_n$
- **Numbering an equation:** \numeq {2} prints ... (2)

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6 Iterations

- **Summation:** \summation {x} {$x = 1$} {n} prints $\sum_{x=1}^{n} x$
- **Product:** \product {x} {$x = 1$} {n} prints $\prod_{x=1}^{n} x$
- **Union:** \union {A_x} {$x = 1$} {n} prints $\cup_{x=1}^{n} A_x$
- **Intersection:** \intersection {A_x} {$x = 1$} {n} prints $\cap_{x=1}^{n} A_x$

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7 Combinatorics

- **Permutation:** \perm {n} {r} prints ${}^{n}P_r$
- **Combination:** \comb {n} {r} prints $\binom{n}{r}$

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8 Differential Calculus

- **Slope:** \slope {x} {t} prints $\frac{\Delta x}{\Delta t}$
- **Limits:** \limitof {$f(x)$} {x} {0} prints $\lim_{x \to 0}$ f(x)
- **Derivative:** \der {x} {t} prints $\frac{dx}{dt}$
- **nthDerivative:** \nder {x} {t} {n} prints $\frac{d^n x}{dt^n}$
- **Partial Derivative:** \partialder {x} {t} prints $\frac{\partial x}{\partial t}$
- **nthPartial Derivative:** \npartialder {x} {t} {n} prints $\frac{\partial^n x}{\partial t^n}$
- **Mixed Derivative:** \mixedder {x} {y} {t} prints $\frac{\partial^2 x}{\partial y \partial t}$
- **Evaluation at constant:** Adding k to each command and an extra {k}, evaluates partial derivatives at k. For example, \npartialderk {x} {t} {3} {k} prints $\left(\frac{\partial^2 x}{\partial t^2}\right)_k$

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9 Integral Calculus

- **Indefinite Integral:** \indefint {$f(x)dx$} {a} {b} prints $\int_a^b f(x)dx$
- **Definite Integral:** \defint {$f(x)$} {a} {b} prints $|f(x)|_a^b$
- **Indefinite Integral at infinity:** \indefintinf {$f(x)dx$} prints $\int_{-\infty}^{+\infty} f(x)dx$
- **Definite Integral at infinity:** \defintinf {$f(x)$} prints $|f(x)|_{-\infty}^{\infty}$
