Math Formula

Math Formulas can be done shorthand or long hand.

Short (text inline): $\forall x \in X, \quad \exists y \leq \epsilon$

Long (text separated and indented):

$$\forall x \in X, \quad \exists y \leq \epsilon$$

Greek Letters - Lowercase

- alpha α
- beta β
- delta δ
- epsilon ϵ
- eta η
- gamma γ
- varepsilon ε
- zeta ζ
- theta θ
- vartheta ϑ
- iota ι
- kappa κ
- lambda λ
- mu μ
- nu ν
- xi ξ
- sigma σ
- varsigma ς

- tau τ
- upsilon υ
- phi ϕ
- varphi φ
- chi χ
- psi ψ
- omega ω

Greek Letters - Uppercase

- Gamma Γ
- Delta Δ
- Theta Θ
- Lambda Λ
- Xi Ξ
- Pi Π
- Sigma Σ
- Upsilon Υ
- Phi Φ
- Psi Ψ
- Omega Ω

Operators

- pm $\pm$
- div $\div$
- star $\star$

- amalg $\amalg$
- uplus $\uplus$
- vee $\vee$
- ominus $\ominus$
- bullet $\bullet$
- oslash $\oslash$
- triangleleft $\triangleleft$
- bigtriangledown $\bigtriangledown$
- setminus $\setminus$
- x°
- mp $\mp$
- cdot $\cdot$
- dagger $\dagger$
- cap $\cap$
- sqcap $\sqcap$
- wedge $\wedge$
- otimes $\otimes$
- diamond $\diamond$
- odot $\odot$
- wr $\wr$
- times $\times$
- ast $\ast$
- ddagger $\ddagger$
- cup $\cup$

- sqcup $\sqcup$
- oplus $\oplus$
- circ $\circ$
- bigcirc $\bigcirc$
- bigtriangleup $\bigtriangleup$
- triangleright $\triangleright$
- sqrt $\sqrt{x}$

Relations

- le $\leq$
- ge $\geq$
- neq $\neq$
- sim $\sim$
- ll $\ll$
- gg $\gg$
- doteq $\doteq$
- simeq $\simeq$
- subset $\subset$
- supset $\supset$
- approx $\approx$
- asymp $\asymp$
- subseteq $\subseteq$
- supseteq $\supseteq$
- cong $\cong$
- smile $\smile$

- equiv $\equiv$
- frown $\frown$
- sqsubseteq $\sqsubseteq$
- sqsupseteq $\sqsupseteq$
- propto $\propto$
- bowtie $\bowtie$
- in $\in$
- ni $\ni$
- prec $\prec$
- succ $\succ$
- vdash $\vdash$
- dashv $\dashv$
- precep $\preceq$
- succeq $\succeq$
- models $\models$
- perp $\perp$
- parallel $\parallel$
- — $\|$
- mid $|$

Brackets

- {
- }
- — $\|$
- backslash $\backslash$

- floor $\lfloor$
- rfloor $\rfloor$
- ceil $\|ceil$
- rceil $\rceil$
- langle $\langle$
- rangle $\rangle$

Formulas

- $(\frac{a}{x})^2$
- $\left(\frac{a}{x}\right)^2$

Multi-Size Symbols

- sum $\sum$
- sum $\sum$
- int $\int$
- int $\int$
- oint $\oint$
- oint $\oint$

Exponents and Subscript

- x^y
- x^y
- x^{abc}
- x_y

- x_y
- x_{abc}

Fractions

- $\frac{1}{2}$
- $\frac{2}{x+2}$
- $\frac{1+\frac{1}{x}}{3x+2}$

Radicals

- $\sqrt{2}$
- $\sqrt{x+y}$
- $\sqrt{x+\frac{1}{2}}$
- $\sqrt[3]{3}$
- $\sqrt[n]{x}$

Sums, Products, Limits, Logarithms

- $\sum_{i=1}^{\infty} \frac{1}{i}$
- $\prod_{n=1}^{5} \frac{1}{x}$
- $\lim_{x \to \infty} \frac{1}{x}$
- $\log_n n^2$
- $\sum \frac{1}{i}$
- $\frac{n}{n-1}$
- $\log n^2$
- $\ln e$

Trig Functions

- cos
- sin
- tan
- sec
- csc
- cot
- arccos
- arcsin
- arctan
- cosh
- sinh
- tanh
- coth
- $\cos^2 x + \sin^2 x = 1$

Matrices

$$\left(\begin{array}{ccc} a & b & c \\ d & e & f \\ g & h & i \end{array} \right)$$

$$\begin{pmatrix} a & b & c \\ d & e & f \\ g & h & i \end{pmatrix}$$