Learning LaTeX - Day4

YL-TING

July 26, 2021

Radicals

$$\sqrt{x} \quad \sqrt{\frac{x}{y}} \quad \sqrt{a+b+c+d+e}$$

$$\sqrt[3]{x} \quad \sqrt[n]{a+b+c}$$

The Quadratic Formula

If $ax^2 + bx + c = 0$ then $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Set Theory

$$\{x \in S \mid P(x)\}$$

$$\{x \in S : P(x)\}$$

$$A \subset B$$

$$A \subseteq B$$

$$A \supset B$$

$$A \supseteq B$$

$$A \subsetneq B$$

$$A \supsetneq B$$

$$A \cup B$$

$$A \cap B$$

$$\bigcup_{n=1}^{\infty} A_n$$

$$\bigcap_{n=1}^{\infty} A_n$$

$$A \setminus B$$

$$A - B$$

$$\emptyset$$

$$\varnothing$$

Logic

$$P \wedge Q$$

$$P \vee Q$$

$$P \neg Q$$

$$P \implies Q$$

$$P \impliedby Q$$

$$P \iff Q$$

$$\forall s \in S$$

$$\exists s \in S$$

$$\text{Therefore: } \therefore$$

Proper Use of Dots

$$\int \int \cdots \int f(x_1, x_2, \ldots, x_n) dx_1 dx_2 \cdots dx_n$$

Numerical Relationship

$$a = b \quad a > b \quad a < b$$

$$a \neq b \quad a \ngtr b \quad a \nless b$$

$$a \geq b \quad a \ngeq b$$

$$a \leq b \quad a \nleq b$$

$$a \approx b$$

$$a \sim b$$

Negations

$$a \not\approx b$$

$$P \not\iff Q$$

$$a \not\approx b$$

$$P \not\Rightarrow Q$$

Number Theory

$$a \equiv b \mod m$$

$$a \equiv b \pmod m$$

$$\mathfrak{pP}$$

Combinatorics

$$\binom{n}{k}$$

$$\binom{n}{k}$$

$$\binom{n}{k_1, k_2, \ldots, k_m}$$

$$_nC_k \quad _nP_k$$

$$_nC_k \quad _nP_k$$

Abstract Algebra

$$\sigma = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \end{pmatrix}$$

$$\operatorname{sgn}(\alpha)$$

$$\ker(\phi)$$

$$\operatorname{coker}(\phi)$$

$$H \triangleleft G$$

$$H \trianglelefteq G$$

$$H \trianglelefteq G$$

$$H \triangleleft G$$

Calligraphic Math Fonts

$$\mathcal{ABCDEFGHIJKLMNOPQRSTUVWXYZ}$$

$$\dashv\lfloor\rfloor\lceil\rceil\{\}\langle\rangle|\|\updownarrow\Updownarrow\backslash\wr\surd\amalg\nabla\int\sqcup\sqcap\sqsubseteq\sqsupseteq\S\dagger\ddagger$$

$$\mathfrak{ABCDEFGHIJKLMNOPQRSTUVWXYZ}$$

$$\mathfrak{abcdefghijklmnopqrstuvwxyz}$$

$$1(\text{one})\ l(\text{letter l})\ \ell(\text{script l})$$

Overset and Underset

$$a \stackrel{?}{=} b$$

$$f(x) \underset{x\to\infty}{\longrightarrow} 0$$

$$f(x) \underset{x\to\infty}{\stackrel{?}{\longrightarrow}} 0$$