

LaTeX sample test

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Theorem 1 Suppose Ψ and $\bar{\Delta}$ are sets and $\phi : \Psi \rightarrow \bar{\Gamma}$ is a bijection. If $\Psi = \emptyset$, then Δ' is the empty set

1. Integration.

(a) $\int f(x) dx$ denotes an **antiderivative** of $f(x)$.

(b) $\int_0^b f(x) dx$ is a *definite integral*. Note that this can also be written as $\int_0^b f(x) dx$; the latter is an “inline” mathematical formula. (Look carefully at how the quotation marks are produced.)

2. Fractions, sub- and super-scripts, and square roots.

$$f(x) = \frac{\sqrt{x_{ij} - 5}}{y^{ab_n}}$$

3. $\lim_{x \rightarrow 0^+} \ln(x) = \infty$.

4. $\forall n \geq 0, \exists m > \max(2, n)$ such that $\sin^{-1}(\pi n/m) = 0$.

5. If $f : A \rightarrow B$ is one-to-one, then $a \in A \Rightarrow f(a) \in B$, and $a \neq a' \Leftrightarrow f(a) \neq f(a')$. But $\alpha < \beta \not\Leftrightarrow f(\alpha) < f(\beta)$.

6. Notice the different types of ellipses: $1 + 2 + \cdots + n$, vs. $1, 2, \dots, n$.

7. $\{f_x, f_y\} = \{\partial f/\partial x, \partial f/\partial y\}$

8. $A \cup B = \{x \mid x \in A \vee x \in B\}$

9. (a) Here is a 2×3 matrix: $A = \begin{bmatrix} 5ab & 2 & 13 \\ 0 & -1 & 0 \end{bmatrix}$.

(b) Here is a piecewise-defined function: Let $f(x) = \begin{cases} 2x & \text{if } |x| \leq 2 \\ \sum_{i=1}^{100} x \Delta x & \text{if } x < -2 \text{ or } x > 2 \end{cases}$