example Latex abbreviations for typed HW.

$A \vee B$	$A \wedge B$	$\subseteq$	$\in$
\lor	\land		\in

ZFC : generally accepted axioms of set theory

(Zermelo — Fraenkel — axiom of choice)

$\{ x \in \mathbb{N} \mid x \text{ is prime} \}$

($\mathbb{N}$: the natural numbers $0, 1, 2, 3, \ldots$; $\in$: is an element of; $\mid$: such that)

$\{ x \text{ a set} \mid x \text{ is an element of itself} \}$

$\{ x \text{ is a set} \mid \text{true} \}$ i.e. the set of all sets

Leads to a contradiction

Russell's Paradox

Sample Axioms

There exists an empty set $\emptyset$ $\{\}$

For any set, X, there exists the power set of that set. $\mathcal{P}(X)$

the set containing exactly all the subsets of X

> y is a subset of X if every member of y is a member of X, written $y \subseteq X$

$\mathcal{P}(\{a,b,c\})$ = has 8 elements

110 codes $\{a,b\}$

000 codes $\emptyset$

etc

2^3 subsets of $\{a,b,c\}$

Let S be the smallest set such that

$0 \in S$

for any $n \in S$, $n+1 \in S$.