

1. (Axiom of Extensionality) If, for the sets  $S$  and  $T$ ,  $S \subseteq T$  and  $T \subseteq S$ , then  $S = T$ .
2. (Axiom of Elementary Sets) There is a set with no elements, called the empty set, and for any objects  $a$  and  $b$  in  $\mathcal{B}$ , there exist sets  $\{a\}$  and  $\{a, b\}$ .
3. (Axiom of Separation) If a propositional function  $P(x)$  is definite (see below) for a set  $S$ , then there is a set  $T$  containing precisely those elements  $x$  of  $S$  for which  $P(x)$  is true.
4. (Power Set Axiom) If  $S$  is a set, then the power set  $\mathcal{P}(S)$  of  $S$  is a set. (The power set of  $S$  is the set of all subsets of  $S$ .)
5. (Axiom of Union) If  $S$  is a set, then the union of  $S$  is a set. (The union of  $S$  is the set of all elements of the elements of  $S$ .)
6. (Axiom of Choice) If  $S$  is a disjoint set of nonempty sets, then there is a subset  $T$  of the union of  $S$  which has exactly one element in common with each member of  $S$ .
7. (Axiom of Infinity) There is a set  $Z$  containing the empty set and such that for any object  $a$ , if  $a \in Z$ , then  $\{a\} \in Z$ .<sup>6</sup>