

A statement that is either true or false is called a logical [REDACTED]. Symbols such as \wedge , \vee or \Leftrightarrow are called [REDACTED] and are used to combine two [REDACTED]. Given statements p and q , the expression $p \Leftrightarrow q$ is an [REDACTED] of p and q and is read ' p **if and only if** q '.

In set theory, we write $a \in A$ to express that a is [REDACTED] of the set A . Taking all [REDACTED] that lie in the set A , the set B or in both creates the set $A \cup B$, called the [REDACTED] of A and B . It's important to realise that there are actually no duplicates in $A \cup B$ because there is no notion of [REDACTED] in set theory. That is, there is no 'repetition' in sets, either an object does lie inside a set, or it doesn't. Of course, both A and B also form a part of $A \cup B$, we write, e.g., $A \subseteq A \cup B$ and say that A is a [REDACTED] of $A \cup B$. This last concept is crucial for the study of relations which are really just [REDACTED] of $A \times B$. The last set is formed by all [REDACTED] (a, b) with $a \in A$ and $b \in B$ and called the [REDACTED] of A and B .

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