In logic, a _____ is a declarative statement to which we can assign a truth value. Said truth value can be either _____, or _____.

When we want to reverse a truth value, we use _____, written $\neg p$. To combine statements, we use logical _____ such as $\wedge$, $\vee$, and $\Rightarrow$. The expression $p \Rightarrow q$ is an _____ meaning "if p then q".

Two propositions are logically _____ if they always have the same truth value, no matter how the variables are assigned.

In set theory, the notation $x \in A$ says that x is an _____ of the set A. Applying logical operators to statements like $x \in A$ and $x \in B$ leads to familiar set operations: the _____ contains the objects that lie in A or in B (or in both), while the _____ of A and B contains exactly the objects that lie in both sets. Finally, $A \setminus B$ is the _____ of A and B, containing everything in A but not in B.

ELEMENT

NEGATION

DIFFERENCE

TRUE

OPERATOR

EQUIVALENT

IMPLICATION

UNION

PROPOSITION

FALSE

INTERSECTION