Propositions and Predicates

Definition: A *proposition* is a statement with a truth value.

Definition: A *predicate* is a proposition whose truth value depends on the value of a variable.

Contradiction

A *proof by contradiction* proves some proposition $p$ is false in the following manner:

- Suppose $p$ is true.
- From this supposition, we can prove that some false proposition must be true. This is the contradiction.
- Thus, $p$ cannot be true.