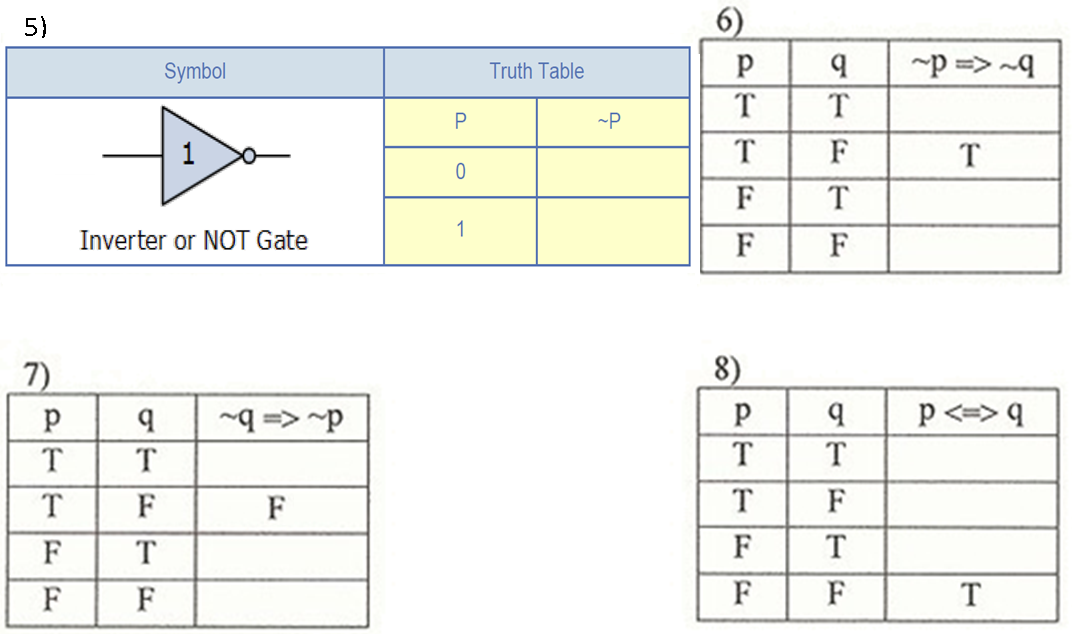
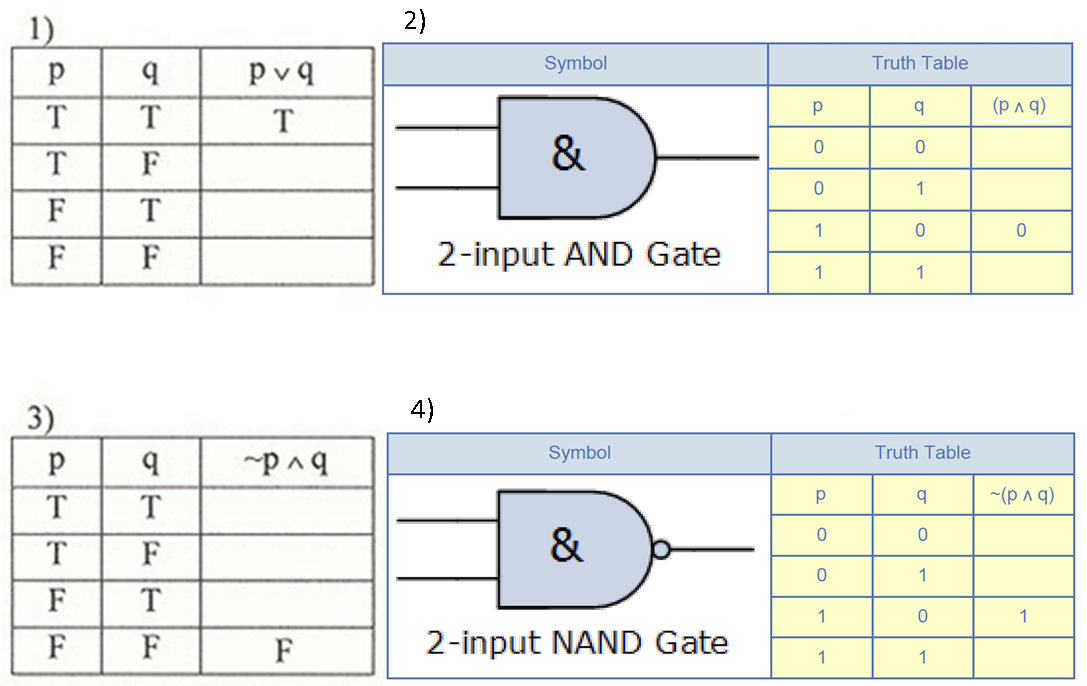
Truth Tables and Logic Gates Worksheet



**Term Symbol(s) Definitions**

|  |  |  |
| --- | --- | --- |
| **Term** | **Symbol(s)** | **Definition** |
| and | ^ | Both have to be true for the compound statement to be true |
| or | v | One or the other or both have to be true for the compound statement to be true |
| Negation | ~  ¬ | The opposite truth value |
| Conditional | p=>q  p→q | p implies q, stated as “if…, then…” |
| Converse | q=>p  q→p  p←q | The order of the hypothesis and conclusion is reversed |
| Inverse | ~p=>~q  ~p→~q | Both hypothesis and conclusion are negated |
| Contrapositive | ~q=>~p  ~q→~p | Hypothesis and conclusion are negated and reversed |
| Biconditional | p<=>q  p↔q | When both a conditional and its converse are true; stated as “if and only if” (or iff) |

OR gate: true if either or both inputs are true

AND gate: true if both inputs are true



NOT gate: reverses the logic state

NOR gate: true if both inputs are false

NAND gate: false if both inputs are true

