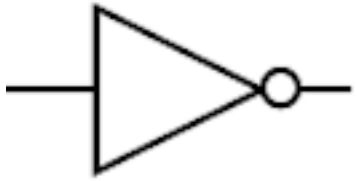
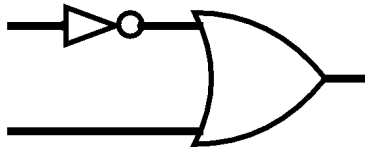
Name	Mathematics Notation	Logic Gate Diagram	Rule/ Truth Table
NOT Negation	$\sim p$		Opposite truth value p | $\sim p$ T | F
AND Conjunction	$(p \wedge q)$		T AND T is T; otherwise, F p | q | $(p \wedge q)$ T | T | T T | F | F F | T | F F | F | F
OR Disjunction	$(p \vee q)$		F OR F is F; otherwise, T p | q | $(p \vee q)$ T | T | T T | F | T F | T | T F | F | F
XOR Exclusive Disjunction	$(p \otimes q)$		Same is F; Opposite truth values are T p | q | $(p \otimes q)$ T | T | F T | F | T F | T | T F | F | F

Name	Mathematics Notation	Logic Gate Diagram	Rule/ Truth Table
NAND	$\sim(p \wedge q)$		T AND T is F; otherwise, T p q $\sim(p \wedge q)$ T T F T F T F T T F F T
NOR	$\sim(p \vee q)$		F OR F is T; otherwise, F p q $\sim(p \vee q)$ T T F T F F F T F F F T
XNOR Biconditional	$\sim(p \otimes q)$ $\Leftrightarrow (p \leftrightarrow q)$		Same is T; Opposite truth values are F p q $\sim(p \otimes q)$ T T T T F F F T F F F T
If…, then Conditional	$p \rightarrow q$	p  q	T-->F is F; otherwise T p q $p \rightarrow q$ $q \rightarrow p$ T T T T T F F T F T T F F F T T