

# Truth tables of boolean functions

T = True  
F = False

Logical identity

$p$	$p$
T	T
F	F

NOT,  $\neg p$ ,  $\bar{p}$ ,  $\neg p$ ,  $\sim p$   
Logical negation

$p$	NOT $p$
T	F
F	T

AND,  $p \wedge q$ ,  $p \cdot q$   
Logical conjunction

$p$	$q$	$p$ AND $q$
T	T	T
T	F	F
F	T	F
F	F	F

OR,  $p \vee q$ ,  $p + q$   
Logical disjunction

$p$	$q$	$p$ OR $q$
T	T	T
T	F	T
F	T	T
F	F	F

XOR,  $p \neq q$ ,  $p \leftrightarrow q$   
Exclusive disjunction

$p$	$q$	$p$ XOR $q$
T	T	F
T	F	T
F	T	T
F	F	F

NAND,  $\overline{p \wedge q}$   
Logical NOT AND

$p$	$q$	$p$ NAND $q$
T	T	F
T	F	T
F	T	T
F	F	T

NOR,  $\overline{p \vee q}$   
Logical NOT OR

$p$	$q$	$p$ NOR $q$
T	T	F
T	F	F
F	T	F
F	F	T

XNOR,  $p = q$ ,  $p \leftrightarrow q$   
Logical equality

$p$	$q$	$p = q$
T	T	T
T	F	F
F	T	F
F	F	T

IF  $p$  THEN  $q$ ,  $p \rightarrow q$ ,  $p$  IMP  $q$   
Logical implication

$p$	$q$	$p \rightarrow q$
T	T	T
T	F	F
F	T	T
F	F	T