

BOOLEAN LOGIC

BASICS

TRUTH TABLES

DE MORGAN'S LAW

SYMBOLS

T - TRUE

F - FALSE

! - NOT

∧ - AND

∨ - OR

BASICS

ORDER OF OPERATIONS
LEFT TO RIGHT

()
!
if
||

! THE GREAT INVERTER

!(TRUE) \Rightarrow FALSE

!(FALSE) \Rightarrow TRUE

!(x < 3) \Rightarrow x \geq 3

!(7 \geq x) \Rightarrow x < 7

TRUTH TABLES

BOOLEAN TEST = $x \neq y$

X	Y	$x \neq y$
T	T	F
T	F	T
F	T	T
F	F	F

SHORT CIRCUIT AKA LAZY EVAL

FIRST FALSE IN AN AND
FAILS THE TEST

FIRST TRUE IN AN OR
PASSES THE TEST

AND

ALL TRUE

OR

ONE TRUE

DE MORGAN'S LAW

DISTRIBUTE / SIMPLIFY

LOGICAL EXPRESSIONS

$!(x || y)$

$=$

$!x \text{ || } !y$

$!x \text{ ee } !(!x \text{ ee } y)$

$=$

$!x \text{ ee } x \text{ || } !y$

$=$

~~$!x \text{ ee } x$~~ || $\boxed{!y}$