

# 1 Boolean Algebra

Truth tables

## 1.1 AND

A	AND	B	Result
True	AND	True	True
True	AND	False	False
False	AND	True	False
False	AND	False	False

## 1.2 OR

A	OR	B	Result
True	OR	True	True
True	OR	False	True
False	OR	True	True
False	OR	False	False

## 1.3 NOT

The symbol for 'NOT' is '-' or  $\neg$  often called 'Negation'.

NOT	A	Result
NOT	False	True
NOT	True	False

## 1.4 NAND

NOT AND

A	NAND	B	Result
True	NAND	True	False
True	NAND	False	True
False	NAND	True	True
False	NAND	False	True

## 1.5 NOR

NOT OR

A	NOR	B	Result
True	NOR	True	False
True	NOR	False	False
False	NOR	True	False
False	NOR	False	True

## 1.6 XOR

Exclusive OR

A	XOR	B	Result
True	XOR	True	False
True	XOR	False	True
False	XOR	True	True
False	XOR	False	False

## 1.7 NOT XOR

NOT Exclusive OR

A	NOT XOR	B	Result
True	NOT XOR	True	True
True	NOT XOR	False	False
False	NOT XOR	True	False
False	NOT XOR	False	True

If this is familiar multiplying numbers with signed values

A	*	B	Result
+A	*	+B	+AB
+A	*	-B	-AB
-A	*	+B	-AB
-A	*	-B	+AB

## 1.8 All Together

Putting them all together in one table

A	B	AND	OR	NAND	NOR	XOR
1	1	1	1	0	0	0
1	0	0	1	1	0	1
0	1	0	1	1	0	1
0	0	0	0	1	1	0