Boolean Algebra

- **The set of elements, B, that contains at least two elements, a, b where $a \neq b$**
- **The binary operations {AND, OR}, also written as {·, +}**
- **The unary operation {NOT}, also written as { ¯ }**

Type	for a, b, c, 0, 1 ∈ B	
Closure:	$a + b \in B$	$a \cdot b \in B$
Identity:	$a + 0 = a$	$a \cdot 1 = a$
	$a + 1 = 1$	$a \cdot 0 = 0$
Commutative:	$a + b = b + a$	$a \cdot b = b \cdot a$
Distributive:	$a + (b \cdot c) = (a+b)(a+c)$	$a \cdot (b + c) = a \cdot b + a \cdot c$
Complement:	$a + \bar{a} = 1$	$a \cdot \bar{a} = 0$
Involution:	$\bar{\bar{a}} = a$	
Idempotent:	$a + a = a$	$a \cdot a = a$
Associative:	$a + (b + c) = (a + b) + c$	$a \cdot (b \cdot c) = (a \cdot b) \cdot c$
Absorption:	$a + a \cdot b = a$	$a \cdot (a + b) = a$
de Morgan's Law:	$\overline{(a + b)} = \bar{a} \cdot \bar{b}$	$\overline{a \cdot b} = \bar{a} + \bar{b}$
Simplification Laws	$a + ab = a$	$a\bar{b} + b = a + b$
Consensus	$ab + \bar{a}c + bc = ab + \bar{a}c$	