Rules of Boolean Algebra

I. Boolean Theorems

(1) $A \cdot 0 = 0$

(2) $A \cdot 1 = A$

(3) $A \cdot A = A$

(4) $A \cdot \overline{A} = 0$

(5) $A + 0 = A$

(6) $A + 1 = 1$

(7) $A + A = A$

(8) $A + \overline{A} = 1$

---

(9) $(A + B) = (B + A)$

(10) $(A \cdot B) = (B \cdot A)$

Associative

(11) $(A + B) + C = A + (B + C)$

(12) $A \cdot (B \cdot C) = (A \cdot B) \cdot C$

Distributive

(13) $A\,(B + C) = AB + AC$

(14) $A + (B \cdot C) = (A + B)(A + C)$

Unique Boolean

(15) $A + \overline{A}B = A + B$

(16) $A + A \cdot B = A$

De Morgan's Theorem

(15) (a) $\overline{A} + \overline{B} = \overline{A \cdot B}$

(b) $A \cdot B = \overline{\overline{A} + \overline{B}}$