Boolean Algorithm Axioms:

$1a.\quad 0 \cdot 0 = 0$

$1b.\quad 1 + 1 = 1$

$2a.\quad 1 \cdot 1 = 1$

$2b.\quad 0 + 0 = 0$

$3a.\quad 0 \cdot 1 = 1 \cdot 0 = 0$

$3b.\quad 1 + 0 = 0 + 1 = 1$

$4a.\quad \text{If } x = 0, \text{ then } \overline{x} = 1$

$4b.\quad \text{If } x = 1, \text{ then } \overline{x} = 0$

Single Variable Theorems

$5a.\quad x \cdot 0 = 0$

$5b.\quad x + 1 = 1$

$6a.\quad x \cdot 1 = x$

$6b.\quad x + 0 = x$

$7a.\quad x \cdot x = x$

$7b.\quad x + x = x$

$8a.\quad x \cdot \overline{x} = 0$

$8b.\quad x + \overline{x} = 1$

$9.\quad \overline{\overline{x}} = x$

Two and Three Variable Theorems

10*a*.	$x \cdot y = y \cdot x$	*Commutative*
10*b*.	$x + y = y + x$	
11*a*.	$x \cdot (y \cdot z) = (x \cdot y) \cdot z$	*Associative*
11*b*.	$x + (y + z) = (x + y) + z$	
12*a*.	$x \cdot (y + z) = x \cdot y + x \cdot z$	*Distributive*
12*b*.	$x + y \cdot z = (x + y) \cdot (x + z)$	
13*a*.	$x + x \cdot y = x$	*Absorption*
13*b*.	$x \cdot (x + y) = x$	
14*a*.	$x \cdot y + x \cdot \overline{y} = x$	*Combining*
14*b*.	$(x + y) \cdot (x + \overline{y}) = x$	
15*a*.	$\overline{x \cdot y} = \overline{x} + \overline{y}$	*DeMorgan's theorem*
15*b*.	$\overline{x + y} = \overline{x} \cdot \overline{y}$	
16*a*.	$x + \overline{x} \cdot y = x + y$	
16*b*.	$x \cdot (\overline{x} + y) = x \cdot y$	
17*a*.	$x \cdot y + y \cdot z + \overline{x} \cdot z = x \cdot y + \overline{x} \cdot z$	*Consensus*
17*b*.	$(x + y) \cdot (y + z) \cdot (\overline{x} + z) = (x + y) \cdot (\overline{x} + z)$	