Truth Tables

Please do the following exercises individually.

Truth Table

Please draw a truth table for a function with four parameters.

Logical Equivalence

Please use truth tables to check the following Boolean expressions.

(a∧b)∧c ↔ a∧(b∧c)

(a∧b)∨c ↔ a∧(b∨c)

¬a∧¬b ↔ ¬(a∨b)

Truth Tables

Please do the following exercises individually.

Truth Table

Please draw a truth table for a function with four parameters.

a	b	c	d
0	0	0	0
0	0	0	1
0	0	1	0
0	0	1	1
0	1	0	0
0	1	0	1
0	1	1	0
0	1	1	1
1	0	0	0
1	0	0	1
1	0	1	0
1	0	1	1
1	1	0	0
1	1	0	1
1	1	1	0
1	1	1	1

Logical Equivalence

Please use truth tables to check the following Boolean expressions.

$(a \wedge b) \wedge c \leftrightarrow a \wedge (b \wedge c)$ true

$(a \wedge b) \vee c \leftrightarrow a \wedge (b \vee c)$ false

$\neg a \wedge \neg b \leftrightarrow \neg (a \vee b)$ true

Truth Functions

Please do the following exercises individually.

Truth Functions

Please calculate the truth table of the following truth functions.

$\varphi(a,b,c) = (a \wedge b) \vee (a \wedge c) \vee (\neg c \vee \neg(a \wedge b))$

$\psi(a,b,c) = (a \wedge b) \wedge (a \wedge \neg c) \wedge (c \vee \neg(a \wedge b))$

Truth Functions

Please do the following exercises individually.

Truth Functions

Please calculate the truth table of the following truth functions.

$\varphi(a,b,c) = (a \wedge b) \vee (a \wedge c) \vee (\neg c \vee \neg(a \wedge b))$ = Tautology

a	b	c	φ(a,b,c)
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

$\psi(a,b,c) = (a \wedge b) \wedge (a \wedge \neg c) \wedge (c \vee \neg(a \wedge b))$ = Contradiction

a	b	c	ψ(a,b,c)
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0