

| | | |
|-----|-------------|----------|
| p | \parallel | $\sim p$ |
| T | | F |
| F | | T |

| p | q | $p \wedge q$ |
|-----|-----|--------------|
| T | T | T |
| T | F | F |
| F | T | F |
| F | F | F |

| p | q | $p \vee q$ |
|-----|-----|------------|
| T | T | T |
| T | F | T |
| F | T | T |
| F | F | F |

| p | q | $p \wedge q$ | $p \vee q$ | $\sim p$ |
|-----|-----|--------------|------------|----------|
| T | T | T | T | F |
| T | F | F | T | F |
| F | T | F | T | T |
| F | F | F | F | T |

| p | q | $\sim p$ | $\sim q$ | $p \wedge q$ | $\sim(p \wedge q)$ | $\sim p \vee \sim q$ |
|-----|-----|----------|----------|--------------|--------------------|----------------------|
| T | T | F | F | T | F | F |
| T | F | F | T | F | T | T |
| F | T | T | F | F | T | T |
| F | F | T | T | F | T | T |

| | | |
|-----------------------------------|---|---|
| Commutative laws: | $p \wedge q \equiv q \wedge p$ | $p \vee q \equiv q \vee p$ |
| Associative laws: | $(p \wedge q) \wedge r \equiv p \wedge (q \wedge r)$ | $(p \vee q) \vee r \equiv p \vee (q \vee r)$ |
| Distributive laws: | $p \wedge (q \vee r) \equiv (p \wedge q) \vee (p \wedge r)$ | $p \vee (q \wedge r) \equiv (p \vee q) \wedge (p \vee r)$ |
| Absorption laws: | $p \wedge (p \vee q) \equiv p$ | $p \vee (p \wedge q) \equiv p$ |
| Idempotent laws: | $p \wedge p \equiv p$ | $p \vee p \equiv p$ |
| Double negative law: | $\sim\sim p \equiv p$ | |
| DeMorgan's laws: | $\sim(p \wedge q) \equiv \sim p \vee \sim q$ | $\sim(p \vee q) \equiv \sim p \wedge \sim q$ |
| Negation laws: | $p \vee \sim p \equiv T$ | $p \wedge \sim p \equiv F$ |
| Universal bound laws: | $p \vee T \equiv T$ | $p \wedge F \equiv F$ |
| Identity laws: | $p \wedge T \equiv p$ | $p \vee F \equiv p$ |
| Tautology and contradiction laws: | $\sim T \equiv F$ | $\sim F \equiv T$ |