Commutative laws: p && q == q && p

p	q	p && q	q && p
T	T	T	T
T	F	F	F
F	T	F	F
F	F	F	F

Commutative laws: p || q == q || p

<table>
<tr><th>p</th><th>q</th><th>p || q</th><th>q || p</th></tr>
<tr><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>T</td><td>F</td><td>T</td><td>T</td></tr>
<tr><td>F</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>F</td><td>F</td><td>F</td><td>F</td></tr>
</table>

Associative laws: (p && q) && r == p && (q && r)

p	q	r	p && q	(p && q) && r	q && r	p && (q && r)
T	T	F	T	F	F	F
T	F	F	F	F	F	F
F	T	T	F	F	T	F
F	F	T	F	F	F	F

Associative laws: (p || q) || r == p || (q || r)

<table>
<tr><th>p</th><th>q</th><th>r</th><th>p || q</th><th>(p || q) || r</th><th>q || r</th><th>p || (q || r)</th></tr>
<tr><td>T</td><td>T</td><td>F</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>T</td><td>F</td><td>F</td><td>T</td><td>T</td><td>F</td><td>T</td></tr>
<tr><td>F</td><td>T</td><td>T</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>F</td><td>F</td><td>T</td><td>F</td><td>T</td><td>T</td><td>T</td></tr>
</table>

Distributive laws: p && (q || r) == (p && q) || (p && r)

p	q	r	q || r	p && (q || r)	p && q	p && r	(p && q) || (p && r)
T	T	F	T	T	T	F	T
T	F	F	F	F	F	F	F
F	T	T	T	F	F	F	F
F	F	T	T	F	F	F	F

Distributive laws: p || (q && r) == (p || q) && (p || r)

p	q	r	q && r	p || (q && r)	p || q	p || r	(p || q) && (p || r)
T	T	F	F	T	T	T	T
T	F	F	F	T	T	T	T
F	T	T	T	T	T	T	T
F	F	T	F	F	F	T	F

Identity law: p && t == p OR p || c == p

p	t	p && t	c	p || c
T	T	T	F	T
T	T	T	F	T
F	T	F	F	F
F	T	F	F	F

Negation law: p || ~p == t OR p && ~p == c

p	~p[i]	t	p || ~p	c	p && ~p
T	F	T	T	F	F
T	F	T	T	F	F
F	T	T	T	F	F
F	T	T	T	F	F

Double negative law: ~(~p) == p

p	~p	~(~p)
T	F	T
T	F	T
F	T	F
F	T	F

Idempotent law: p && p == p OR p || p == p

p	p && p	p || p
T	T	T
T	T	T
F	F	F
F	F	F

Universal bound law: p || t == t OR p && c == c

p	t	p || t	c	p || c
T	T	T	F	F
T	T	T	F	F
F	T	T	F	F
F	T	T	F	F

De Morgan's law: ~(p && q) == ~p || ~q

p	q	p && q	~(p && q)	~p	~q	~p || ~q
T	T	T	F	F	F	F
T	F	F	T	F	T	T
F	T	F	T	T	F	T
F	F	F	T	T	T	T

De Morgan's law: ~(p || q) == ~p && ~q

<table>
<tr><td>p</td><td>q</td><td>p || q</td><td>~(p || q)</td><td>~p</td><td>~q</td><td>~p && ~q</td></tr>
<tr><td>T</td><td>T</td><td>T</td><td>F</td><td>F</td><td>F</td><td>F</td></tr>
<tr><td>T</td><td>F</td><td>T</td><td>F</td><td>F</td><td>T</td><td>F</td></tr>
<tr><td>F</td><td>T</td><td>T</td><td>F</td><td>T</td><td>F</td><td>F</td></tr>
<tr><td>F</td><td>F</td><td>F</td><td>T</td><td>T</td><td>T</td><td>T</td></tr>
</table>

Absorption law: p || (p && q) == p

<table>
<tr><td>p</td><td>q</td><td>p && q</td><td>p || (p && q)</td></tr>
<tr><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>T</td><td>F</td><td>F</td><td>T</td></tr>
<tr><td>F</td><td>T</td><td>F</td><td>F</td></tr>
<tr><td>F</td><td>F</td><td>F</td><td>F</td></tr>
</table>

Absorption law: p && (p || q) == p

<table>
<tr><td>p</td><td>q</td><td>p || q</td><td>p && (p || q)</td></tr>
<tr><td>T</td><td>T</td><td>T</td><td>T</td></tr>
<tr><td>T</td><td>F</td><td>T</td><td>T</td></tr>
<tr><td>F</td><td>T</td><td>T</td><td>F</td></tr>
<tr><td>F</td><td>F</td><td>F</td><td>F</td></tr>
</table>

Negations of t and c: ~t == c OR ~c == t

t	~t	c	~c
T	F	F	T
T	F	F	T
T	F	F	T
T	F	F	T