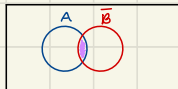


9. $B\bar{A} = T, \bar{B} + \bar{A} = T, B = B\bar{A}$

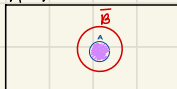
1. $A\bar{B} = \text{false}$



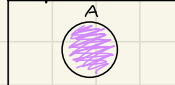
$\bar{A} + B = \text{true}$



$A = AB$

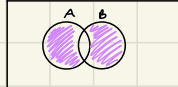


10. identity

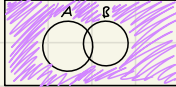


A	A · A	A + A
0	0	0
1	1	1

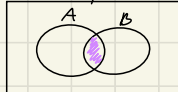
2. $\bar{A}\bar{B}$



$A' + B'$



Commutativity



A	B	AB	BA	A+B	B+A
0	0	0	0	0	0
0	1	0	0	1	1
1	0	0	0	1	1
1	1	1	1	1	1

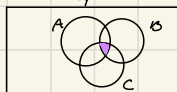
3. $f_1(A) = T, A = T, A \cdot F$

$f_2(A) \cdot A, A = T, f_1(A) \cdot T, A = F, f_2(A) \cdot F$

$f_3(A), A = T, f_3 = F, A \cdot F$

$f_4(A)$ will always be false

associativity



A	B	C	BC	A(BC)	AB	(ABC)	B+C	A+(B+C)	A+B	(A+B)+C
0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	1	1	0	1
0	1	0	0	0	0	0	1	1	1	1
0	1	1	1	0	0	0	1	1	1	1
1	0	0	0	0	0	0	0	1	1	1
1	0	1	0	0	0	0	1	1	1	1
1	1	0	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1

4. $f_1 = A \cdot T, B = T, AB = T$

$f_2 = A \cdot T, B = F, AB = TF$

$f_3 = A = F, B = T, AB = FT$

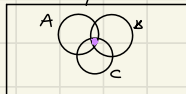
$f_4 = A \cdot F, B = F, AB = FF$

5. $f_5 = f_2 + f_4$
 $f_6 = f_1 + f_3 + f_4$

6. $A \cap B = \overline{A \cap B} = \bar{A} + \bar{B}$

$A \cup B = \overline{A \cap B} = \bar{A} + \bar{B}$

distributivity



A	B	C	B+C	(B+C)A	AB	AC	(AC)	BC	(BC)	A+B	A+C	B(A+C)
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	1	0
0	1	0	0	0	0	0	0	0	0	1	0	0
0	1	1	1	0	0	0	0	1	1	1	1	1
1	0	0	0	0	0	0	0	0	0	1	0	0
1	0	1	1	1	1	0	0	0	0	1	1	1
1	1	0	1	1	1	1	1	0	0	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1

8. $A \cap A = \overline{A \cap A} = \bar{A}$

$A \cap B = \overline{A \cap B}$

$(A \cap B) \cap (A \cap B) = \overline{(A \cap B) \cap (A \cap B)}$

$= A \cdot B \cdot \bar{A} \cdot \bar{B}$

$= A \cdot B$

identity



A	B	AB	$\bar{A}\bar{B}$	$\bar{A} + B$	$A + \bar{B}$	$\bar{A} + \bar{B}$
0	0	0	1	0	1	1
0	1	0	1	1	0	0
1	1	0	1	1	0	0