Homework 4

Apply Demorgan's theorems to each expression

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

a. $\overline{A+B}$

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

b. $\overline{(A+\bar{B})(\bar{C}+D)}$

$= \overline{(A+\bar{B})} + \overline{(\bar{C}+D)}$

$= \bar{A}B + C\bar{D}$

b. $AC(\bar{B}+C)$

$= A\bar{B}C + ACC$

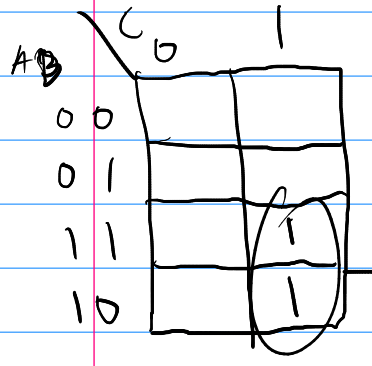
$= A\bar{B}C + AC$

$= A\bar{B}C + AC(B+\bar{B})$

$= A\bar{B}C + ABC + A\bar{B}C$

$= A\bar{B}C + ABC$

A	B	C
1	0	1
1	1	1

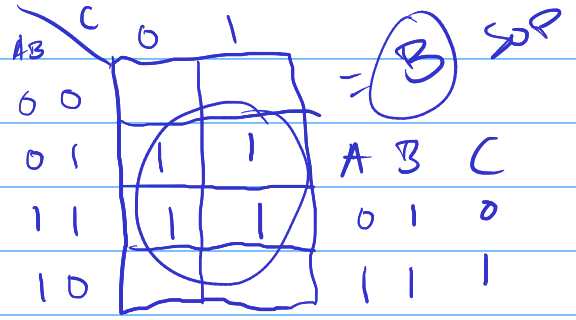


$= AC$ SoP

c. $\bar{A}(BC+B\bar{C}) + A(\bar{B}C+B\bar{C})$

$= \bar{A}BC + \bar{A}B\bar{C} + ABC + AB\bar{C}$

A	B	C
0	1	1
0	1	0
1	1	1
1	1	0



$= B$ SoP