

## HW 12 - assigned

12-A Given the Boolean functions  $F_1$  and  $F_2$ ,

- (a) Show that the Boolean function  $E = F_1 + F_2$  contains the sum of the minterms of  $F_1$  and  $F_2$ .
- (b) Show that the Boolean function  $G = F_1 F_2$  contains only the minterms that are common to  $F_1$  and  $F_2$ .

a)  $E$  will be equal to the sum of minterms in  $F_2$  if it's not already in  $F_1$ , because if it is then it'll be simplified.

b) When multiplying the minterms, those that are the same minterm. However with different minterms the variables appear one in its regular form and one as a complement. Since  $x \cdot x' = 0$  all different minterms cancel out to be 0

12-B Give the truth table of the function:

$$F = xy + xy' + y'z$$

x	y	z	F
0	0	0	0
0	0	1	1
0	1	0	0
1	0	0	1
0	1	1	0
1	0	1	1
1	1	0	1
1	1	1	1

$y'z = 1$

$xy' = 1$

$xy = 1$