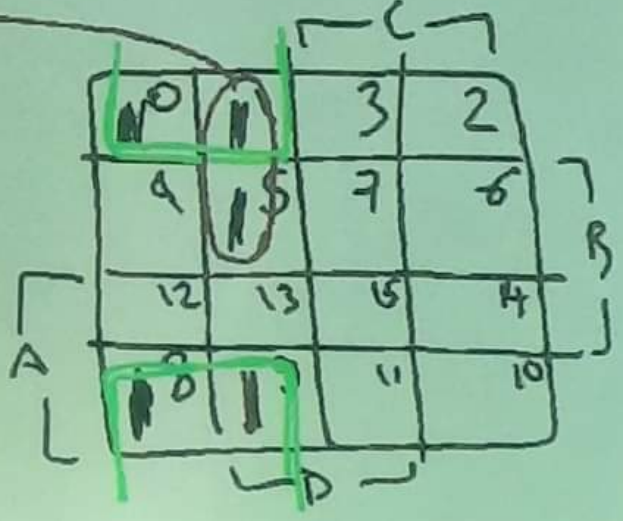
f. $F(A, B, C, D) = \sum(0,1,5,8,9)$

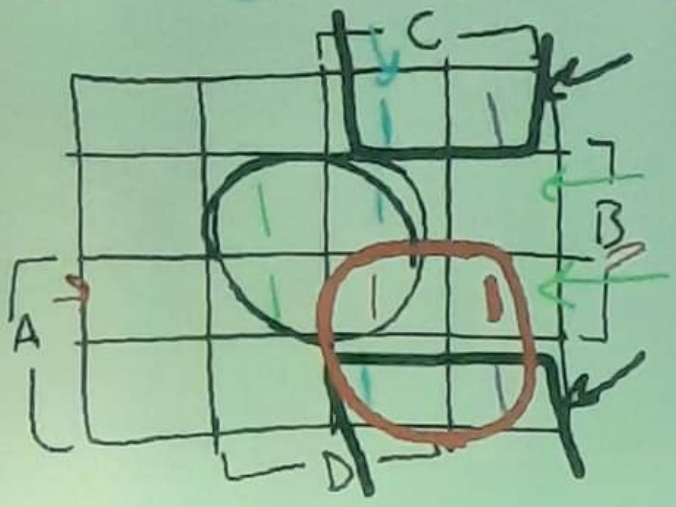
$F = A'C'D + B'C'$



Simplify the following Functions using K-Map

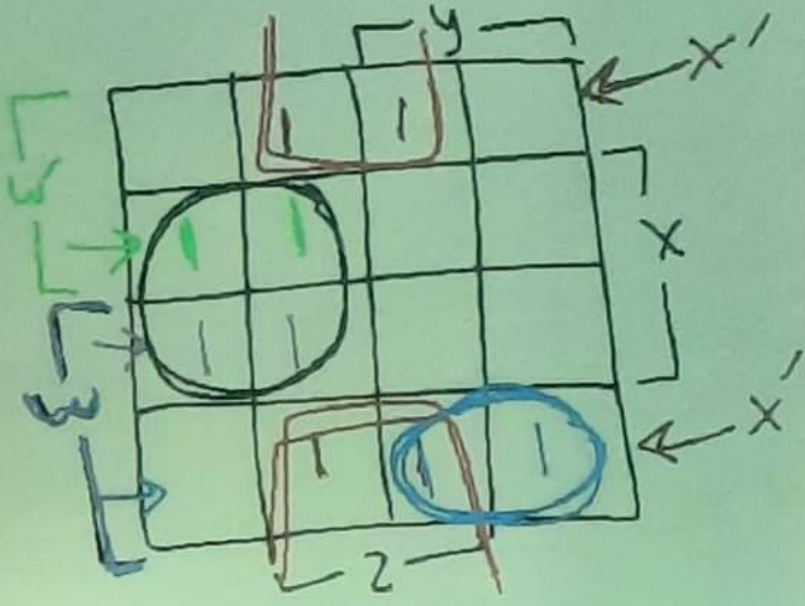
a. $F(A, B, C, D) = ABC + CD + BC'D + B'C$

$F = B'C + BD + AC$



c. $F(w, x, y, z) = x'z + w'xy' + w(x'y + xy')$

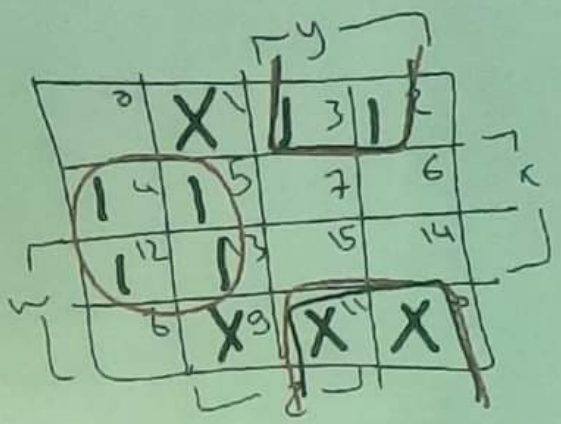
$F = xy' + x'z + wx'y$



6) Simplify the following Functions together with the don't care conditions

a. $F(w, x, y, z) = \Sigma(2, 3, 4, 5, 12, 13), d(w, x, y, z) = \Sigma(1, 9, 10, 11)$

$F = xy' + x'y$

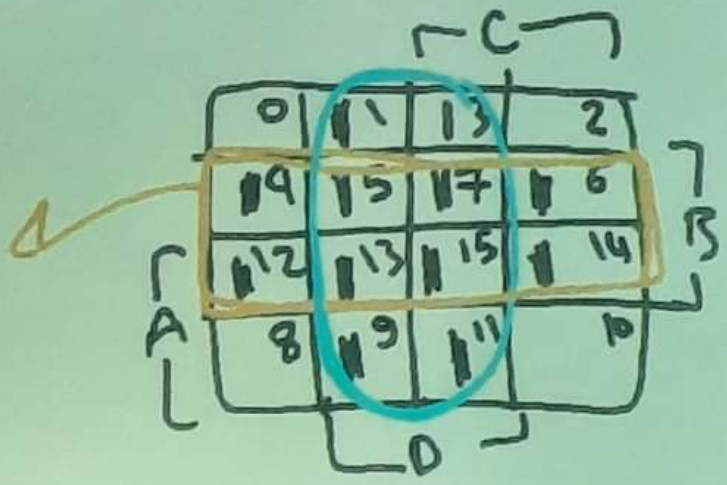


b. $F(A, B, C, D) = \prod(0,2,8,10)$

1,2 4,8

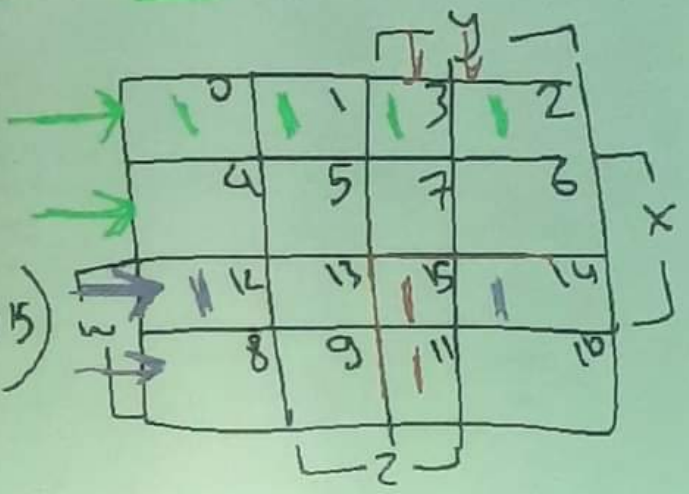
$F = \Sigma(1,3,4,5,6,7,9,11,12,13,14,15)$

$\overline{F} = B + D$



b. $F(w,x,y,z) = wyz + w'x' + wxz'$

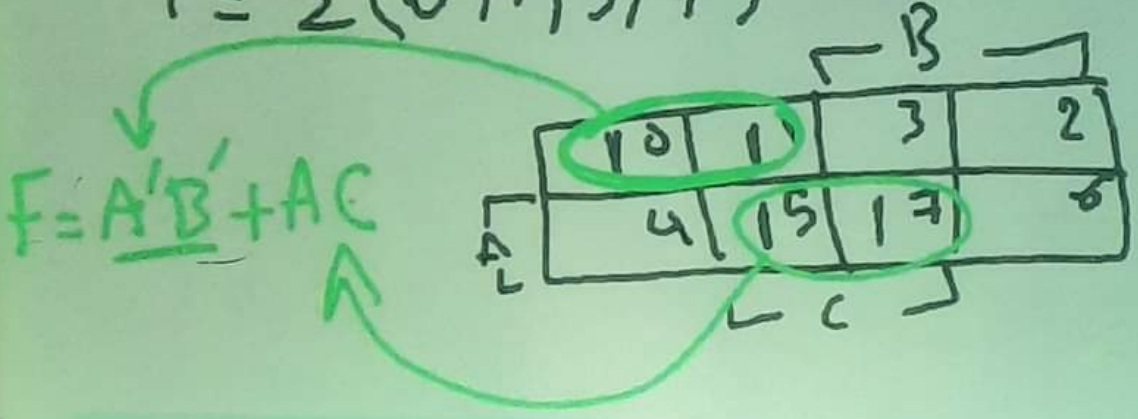
$F = \Sigma(0,1,2,3,11,12,14,15)$



Simplify the following Functions using K-Map

a. $F(A, B, C) = \prod(2,3,4,6)$

$F = \Sigma(0,1,5,7)$

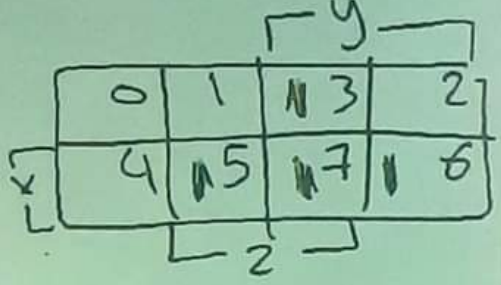


$F = A'B' + AC$

map:

a. $F(x,y,z) = xy + yz + xy'z$

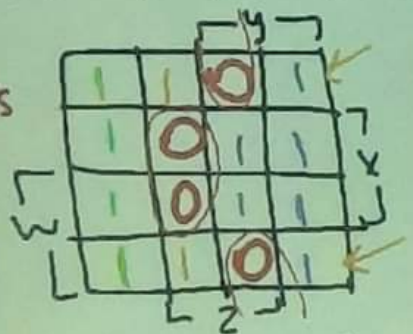
6,7 — 101



$F = \Sigma(3,5,6,7)$

7) Simplify the following Function in product of sum form

a. $F(w, x, y, z) = x'y' + y'z' + yz' + xy$



sum of products

$F' = xy'z + x'yz$

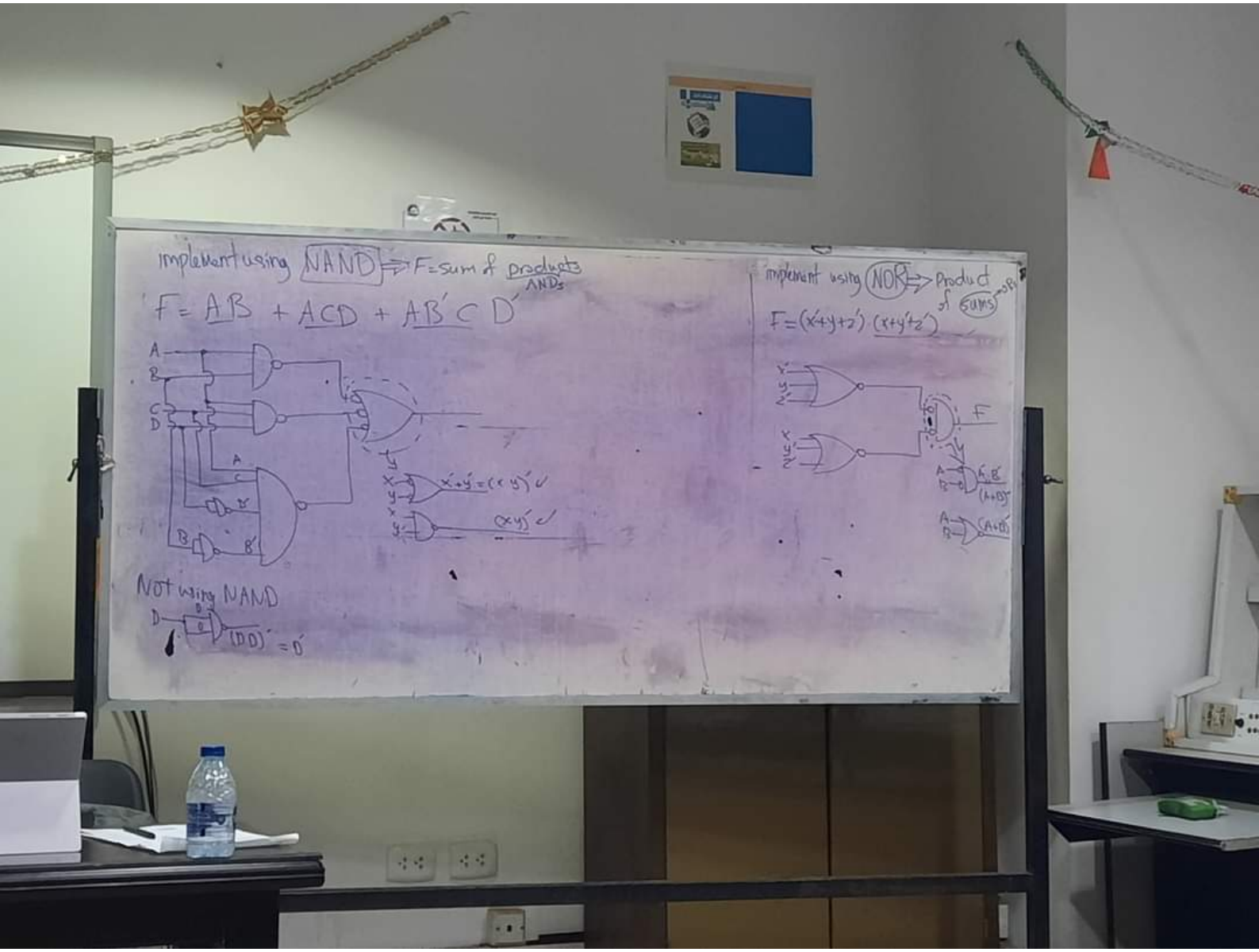
$F = (xy'z + x'yz)'$

$= (x'+y+z') \cdot (x+y'+z')$ ⇒ product of sum

Kmap ⇓

F' = sum of product ⇓

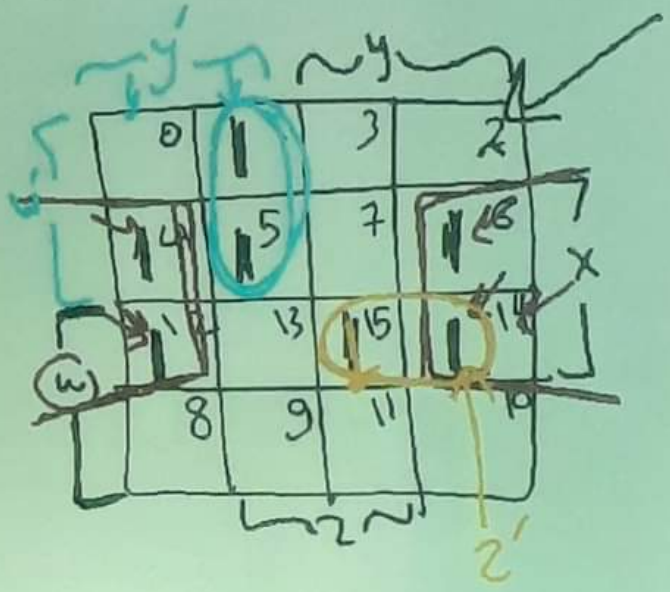
$F = (F')'$ = product & sum


Implement using NAND ⇒ F = sum of products
ANDs
F = AB + ACD + AB'C D'
A
B
C
D
A
B
B'
x'+y' = (x y)'
(xy)'
Not using NAND
D
(DD)' = D'
Implement using NOR ⇒ Product of SUMS
F = (x'+y+z') (x+y'+z')
x'
y
z'
x
y'
z
F
A
B
A.B'
(A+B)'
(A+B)'

e. $F(w, x, y, z) = \sum(1, 4, 5, 6, 12, 14, 15)$

rows colums

$F = xz' + w'y'z + wxy$



nd a Simplified expression of the **complement** of t

a. $F(w, x, y, z) = \sum(0,1,4,5,6,7,8,9)$

F'

$F' = wx + x'y$