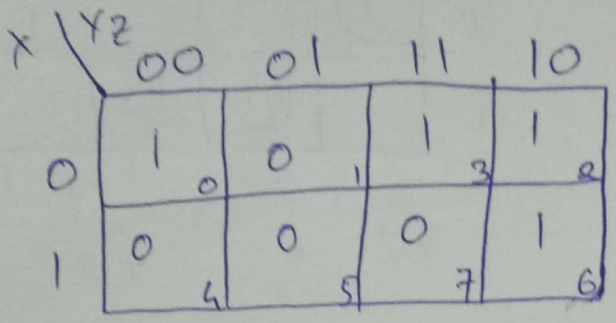
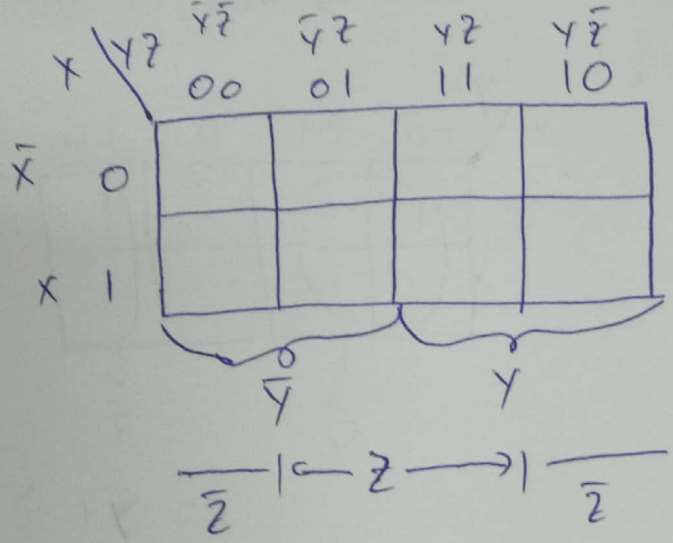
Karnaugh's Map Reduction

$F(X, Y, Z) = \Sigma m(0, 2, 3, 6)$



between two adjacent cells only one bit changes



Some basic rules for K-map reduction

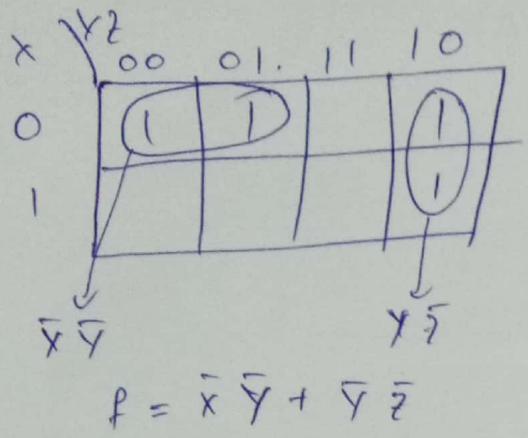
(i) all '1's has to be covered

(ii) a '1' can be covered more than once

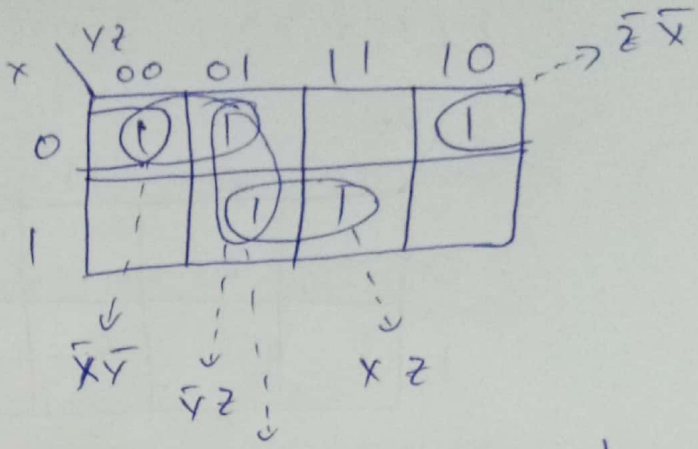
by clubbing 2 adjacent cells one variable is reduced

by clubbing 4 cells 2 variables are reduced

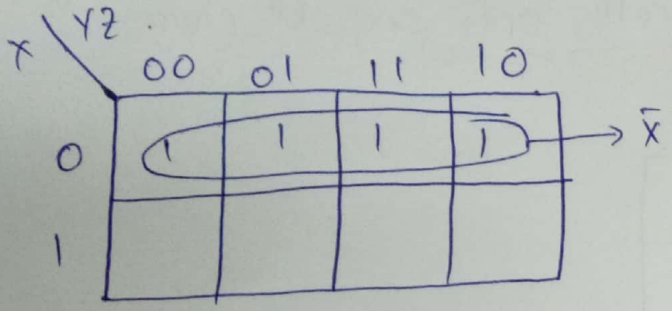
Some of possible combinations:-

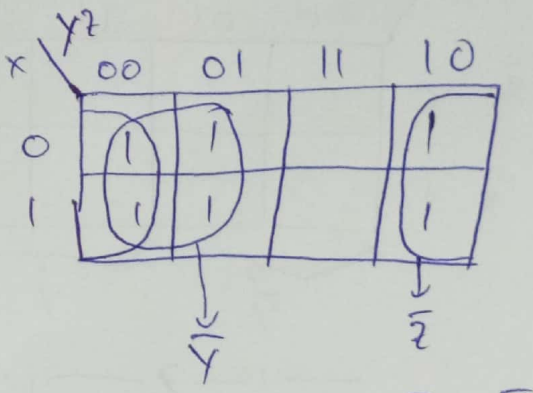


$f = \bar{x}\bar{y} + \bar{y}\bar{z}$

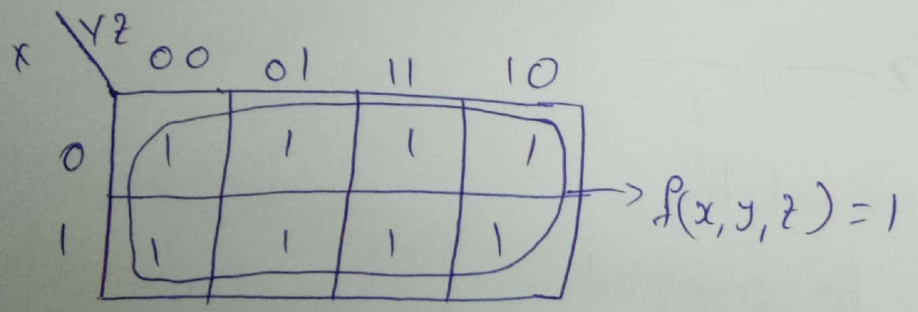


this combination is not required as these 1's are covered else where





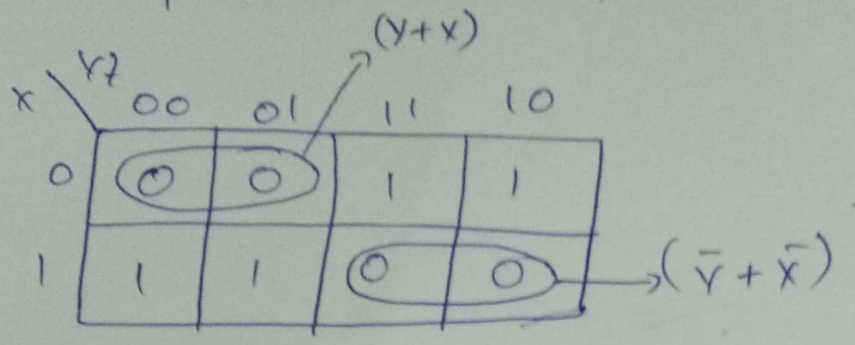
$f = \bar{y} + \bar{z}$



In k map cells corresponding to minterms should be filled with 1's and remaining cells with 0's

Similarly when a function is represented using maxterms corresponding cells need to be filled with 0's and remaining cells with 1's

K map can be used to represented



$\Rightarrow f = (x+y)(\bar{x}+\bar{y})$

K map can also be used to represent a function in Pos form In this case 0's has to be combined. Corresponding terms are to be multiplied.