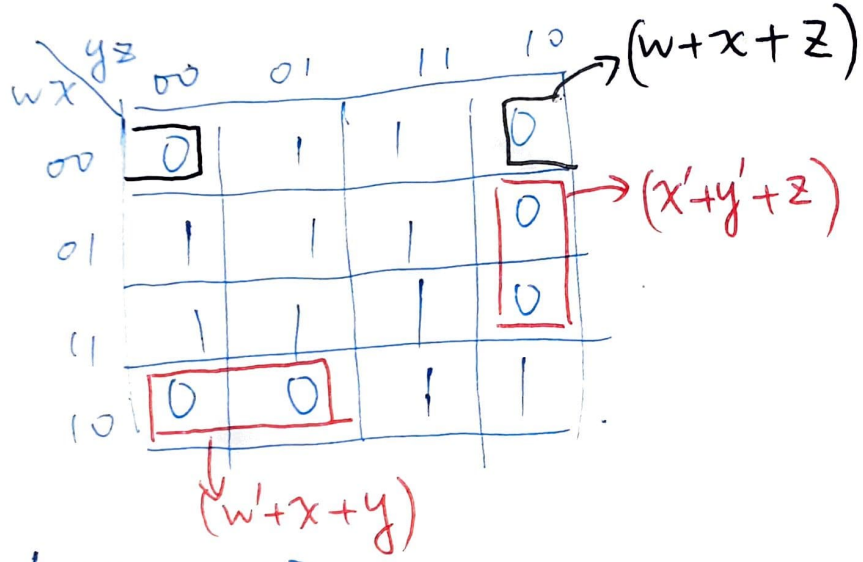
b.

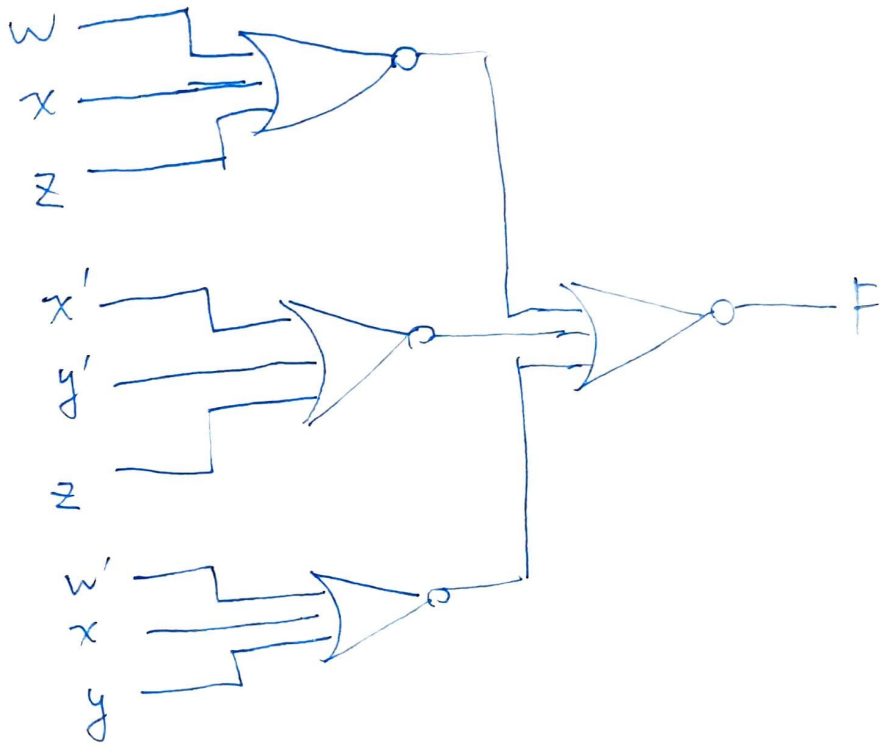
$$F(w,x,y,z) = w'z + xy' + yz + wx'y$$




NOR – NOR

$$[(\alpha+\beta)' + (\gamma+\omega)']'$$

$$= (\alpha+\beta)\cdot(\gamma+\omega).(\text{product of sum})$$




product of sum

$$\Rightarrow F(w,x,y,z) = (w+x+z)\cdot(x'+y'+z)\cdot(w'+x+y)$$

$$F' = (w+x+z)' + (x'+y'+z)' + (w'+x+y)'$$

$$F = [(w+x+z)' + (x'+y'+z)' + (w'+x+y)']' \text{ ※}$$