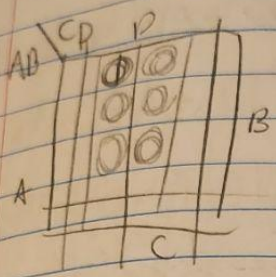
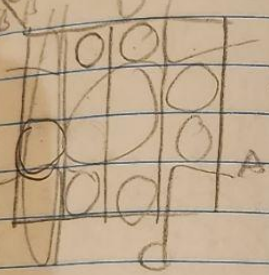
$\Pi(1,3,5,7,13,15)$

1.) AD



$D' + AB'$

B.)

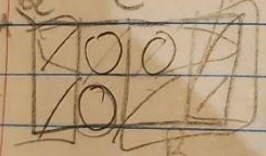


$\Pi(1,3,6,9,11,12,14)$

$BD + B'D' + C'D'A'$

2.) $A'C' + B'C' + BC' + AB$

a.)



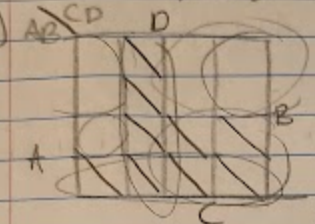
$A'C' + AB$

$(C')(A+B)'$

$\Sigma(0,2,4,6,7)$

2.)

b.) $ACD' + C'D + AB' + ABCD$

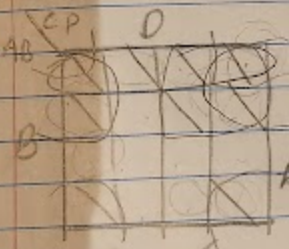


$C'D + AB' + AC$

$(A+B+C'+D')(A'+C)(A'+D')$

$\Sigma(1,5,8,9,10,11,13,14,15)$

c.) $(A'+B+D')(A'+B'+C)(A'+B'+C)(B'+C+D')$



$A'+B+D'+C = 0110 = 6$

$A+B+D'+C' = 1100 = 12$

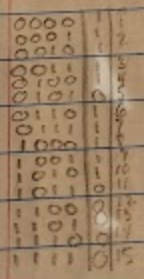
$A+B'+C'+D = 1001 = 9$

$A+B'+C+D = 1011 = 11$

$A+B+C+D' = 1010 = 10$

$A+B'+C+D' = 1000 = 8$

$A+B'+C+D' = 0010 = 2$

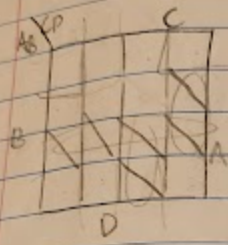


$A'B' + A'C + B'D' + A'D'$

$\Sigma(0,1,2,3,4,6,7,8,10)$

2.)

d) $BCD' + ABC' + ACD$



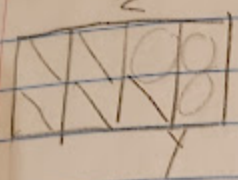
$(D' + B')(D + A')(C + B')(A + C)$

$AB + BCD' + ACD$

$\Sigma(6, 11, 12, 13, 14, 15)$

3.) $F(xyz) = \Sigma(0,1,4,5,6)$ $D(xyz) = \Sigma(2,3,7)$

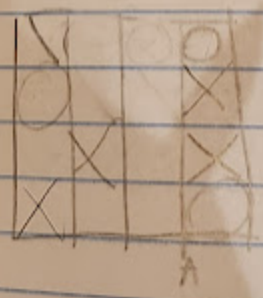
a.)



$\Sigma(0,1,2,3,4,5,6,7)$

$X + X' = 1$

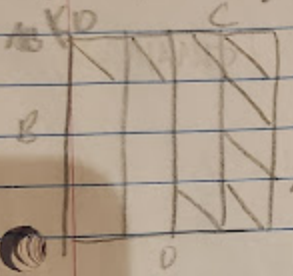
b.) $F(ABCD) = \Sigma(0,6,8,13,14)$ $d(ABCD) = \Sigma(2,4,10)$



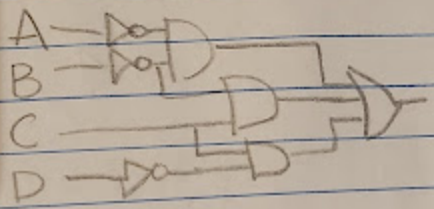
$B'D' + CD' + ABC'D$

$\Sigma(0,2,6,8,10,13,14)$

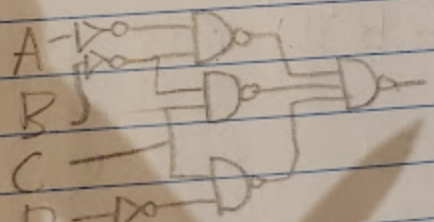
4a) $F(ABCD) = \Sigma(0,1,2,3,6,10,11,14)$



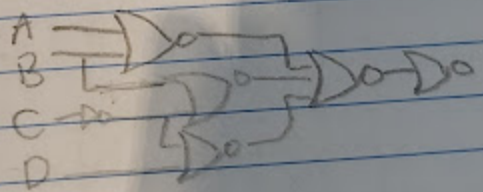
$A'B' + C.D' + B'C$



NAND

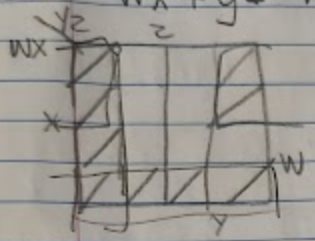


NOR

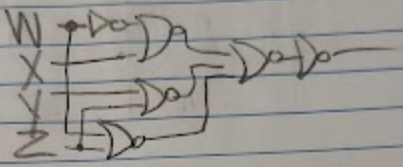


5.)

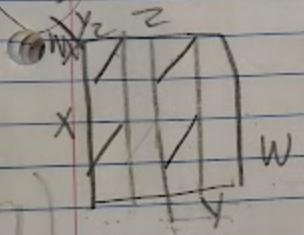
a.) $WX' + yz' + w'yz'$



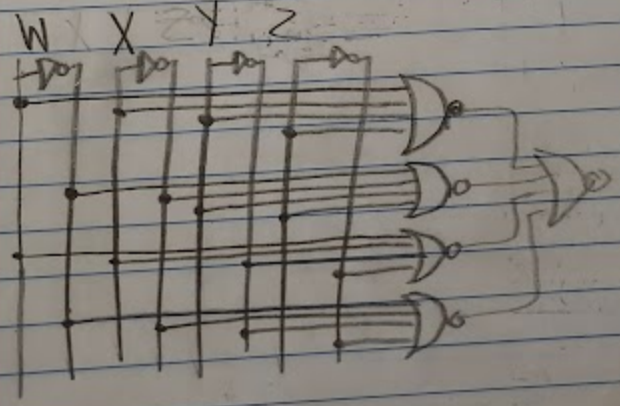
$Y'Z' + WX' + W'Z'$



b.) $F(WXYZ) = \Sigma(0,3,12,15)$



$W'X'Y'Z' + WXY'Z' + W'X'YZ + WXYZ$

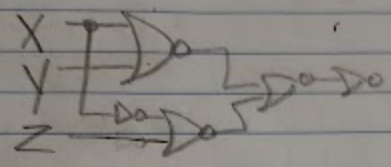


$F(xyz) = [(x+y)(x'+z)]'$

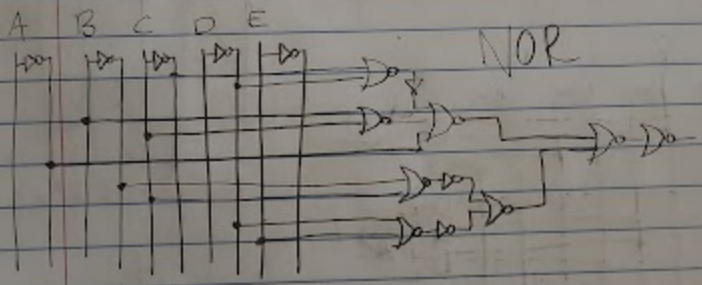
$(x+y)+(x'+z)'$

$x'y' + xz$

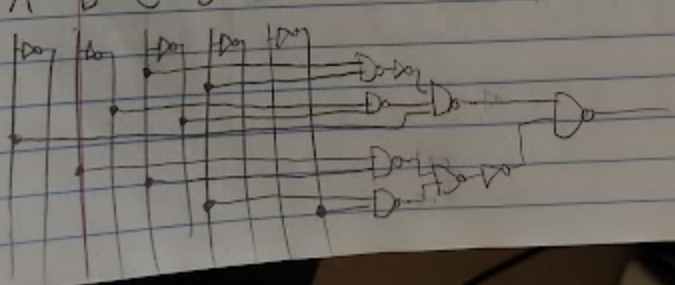
(c.)



(e.) a.) $CD(B+C)A + (BC' + DE')$



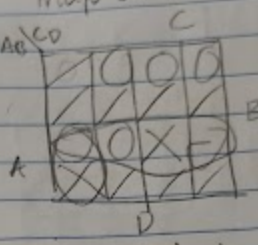
NAND



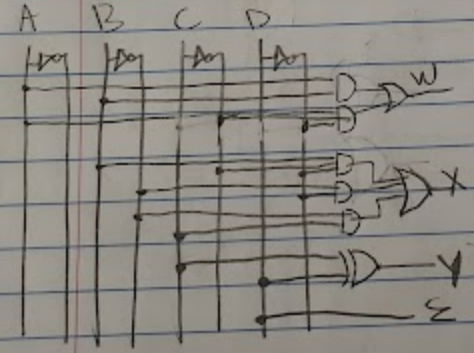
7.)

	A	B	C	D	BCD (8421) w	x	y	z
0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0	1
2	0	0	1	0	0	0	1	0
3	0	0	1	1	0	0	1	1
4	0	1	0	0	0	1	0	0
5	0	1	0	1	0	1	0	1
6	0	1	1	0	0	1	1	0
7	0	1	1	1	0	1	1	1
8	1	0	0	0	1	0	0	0
9	1	0	0	1	1	0	0	1

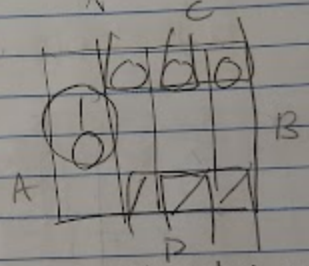
map for w



W = AB + AC'D'

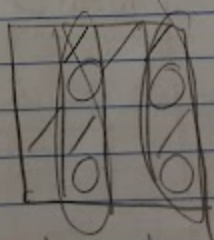


X



X = BC'D' + B'D' + B'C

Y



Y = CD' + C'D = C⊕D

Z = D