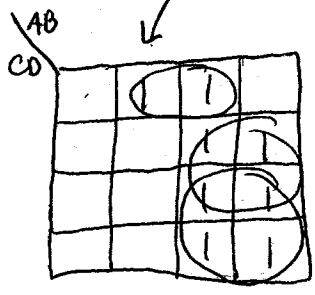


4) a) Output 1 → 4
MSB → LSB

Gray Code;

	A	B	C	D
0	0	0	0	0
0	0	0	1	1
0	0	1	1	1
0	0	1	0	0
0	1	1	0	0
0	1	1	1	1
0	1	0	1	1
0	1	0	0	0
1	1	0	0	0
1	1	0	1	1
1	1	1	1	1
1	1	1	0	0
1	0	1	0	0
1	0	1	1	1
1	0	0	1	1
1	0	0	0	0

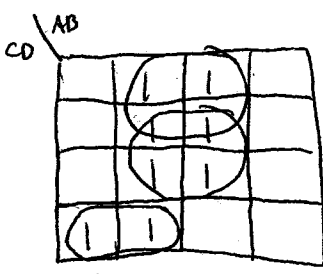
Output 1:



Replace w/ False
 $F = AB + AC + AD$

$F(1) = AD + AC + BC'D'$

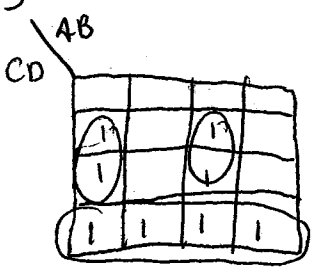
Output 2:



Replace w/ False
 $F = BC' + BD + A'B$

$F(2) = BC' + BD + A'CD'$

Output 3:

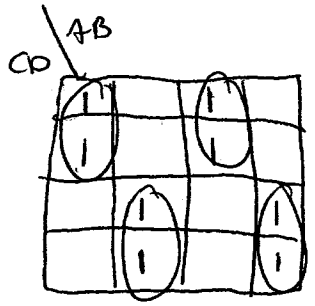


$F(3) = A'B'D + ABD + CD'$

$XOR = (A \oplus (B \oplus C))$

switch

Output 4:



$F(4) = A'B'C' + ABC' + A'BC + AB'C$

$XOR = D(A \oplus B)' + CD'$