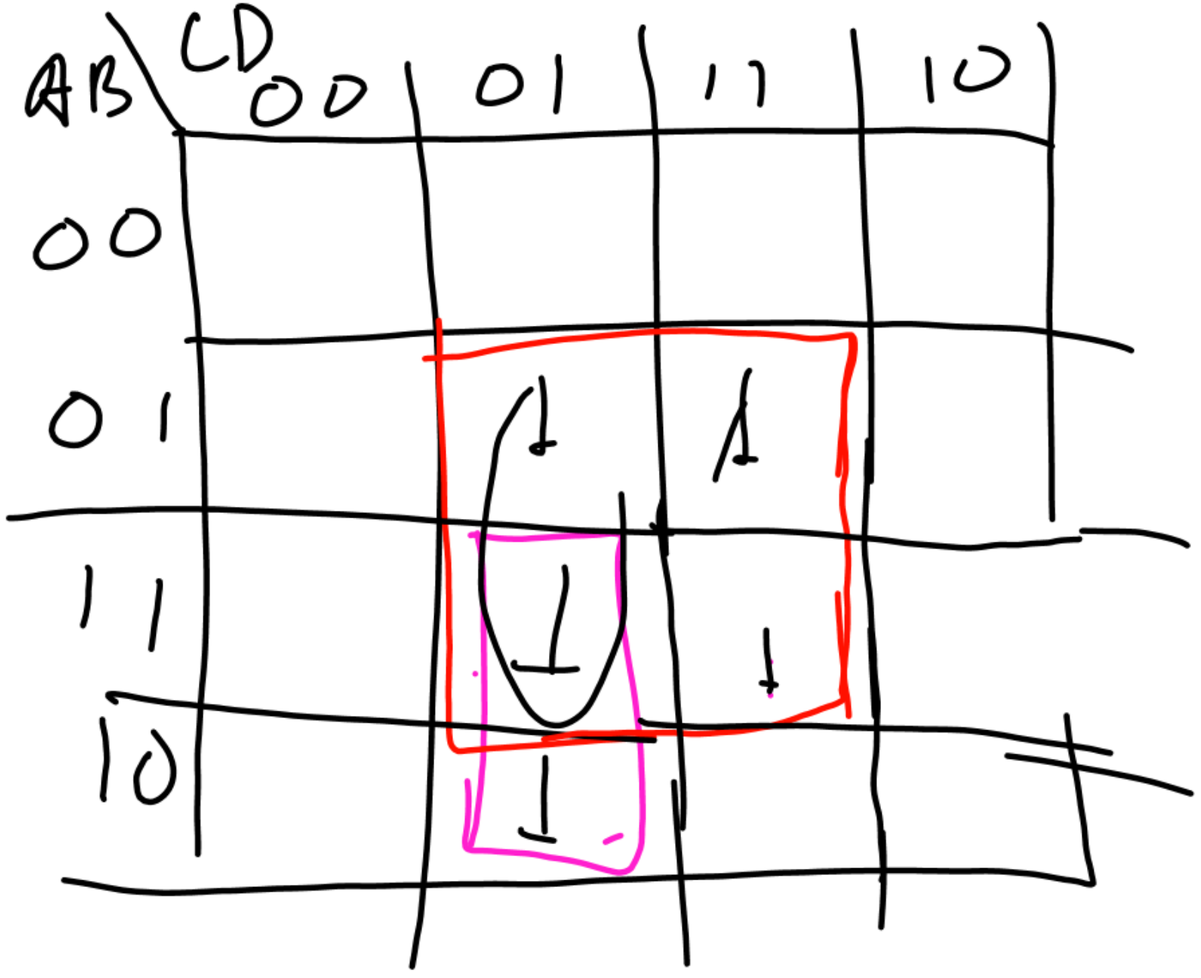
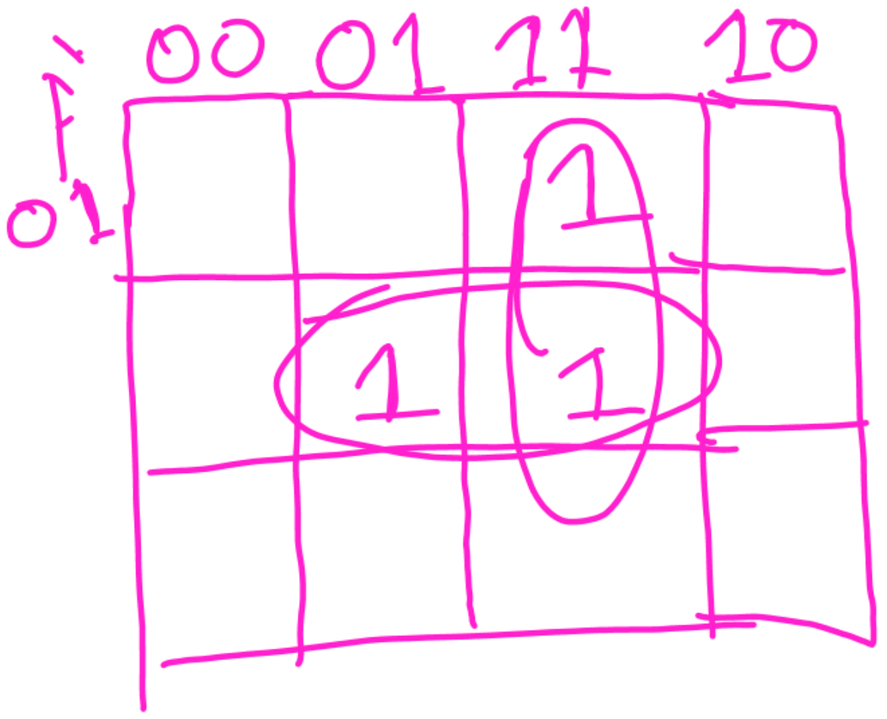
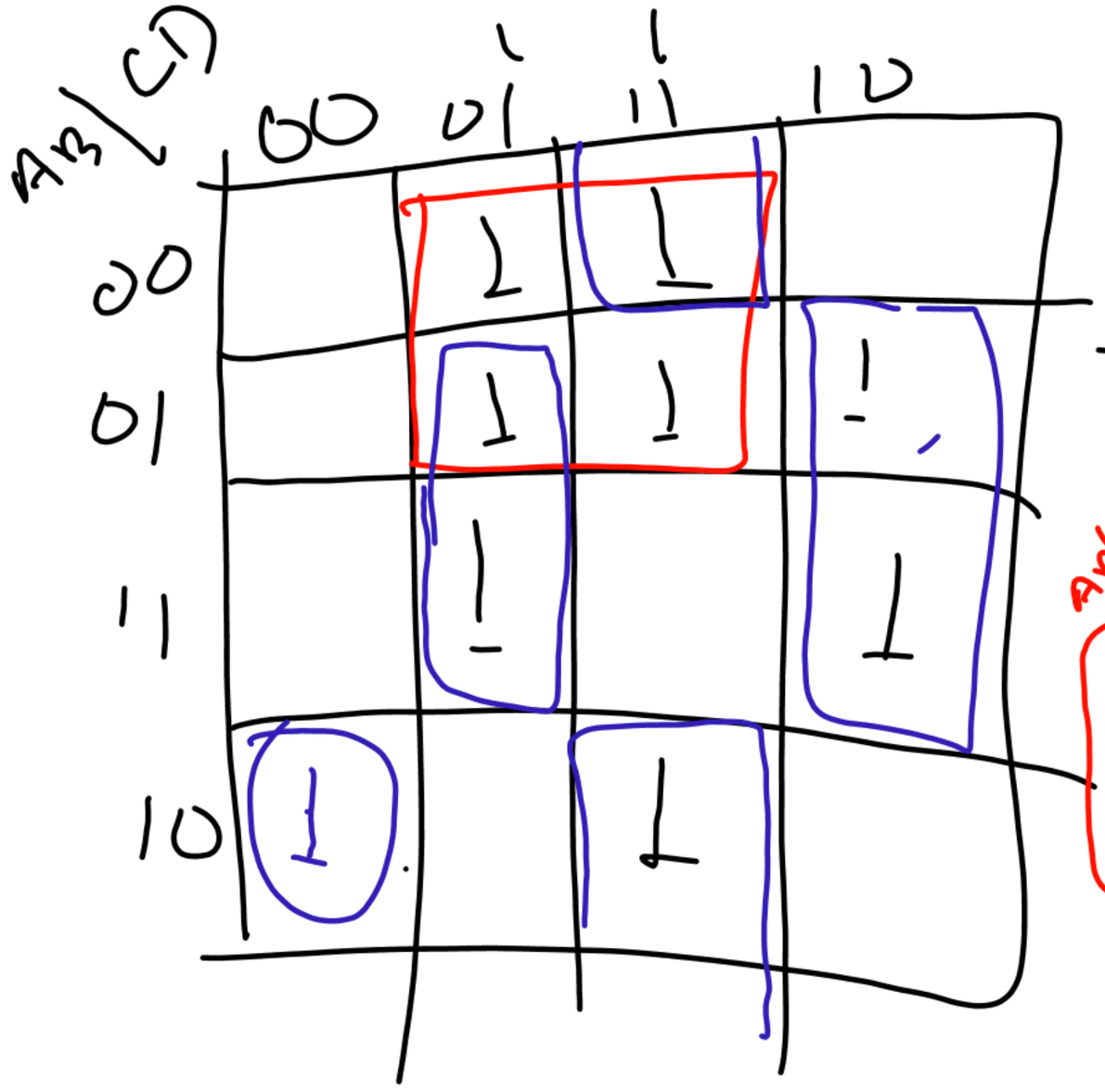
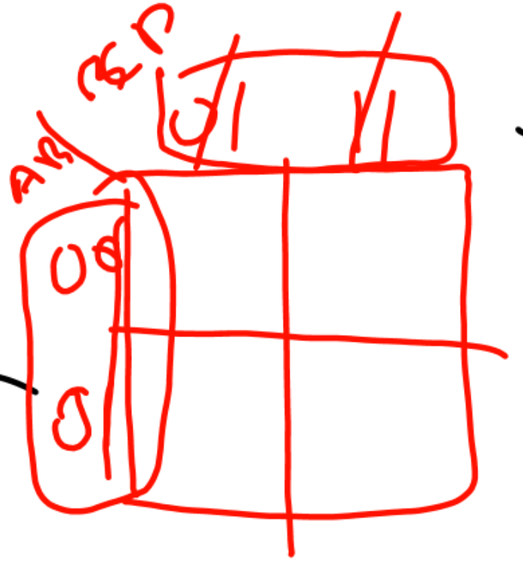
AB, CD







$$= \bar{A}D + B\bar{C}D + B\bar{C}\bar{D}$$



$$+ \bar{B}CD$$

$$+ AB\bar{C}\bar{D}$$

$$\bar{A}D$$

AB/CDE

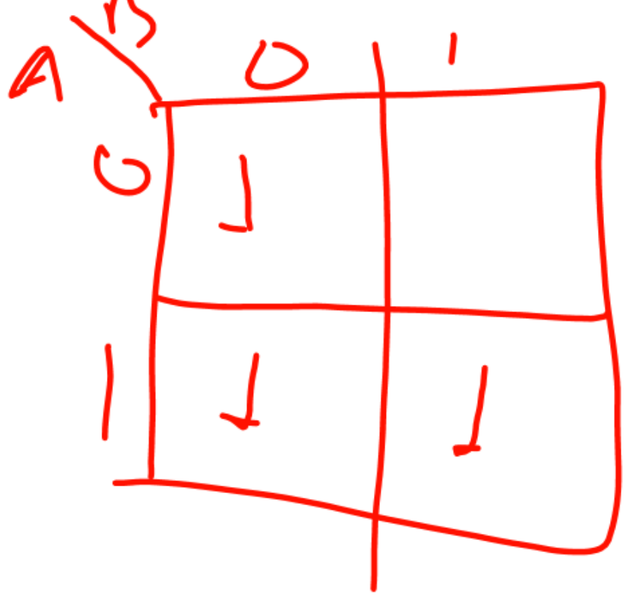
ABL/DE

0 1 3 2

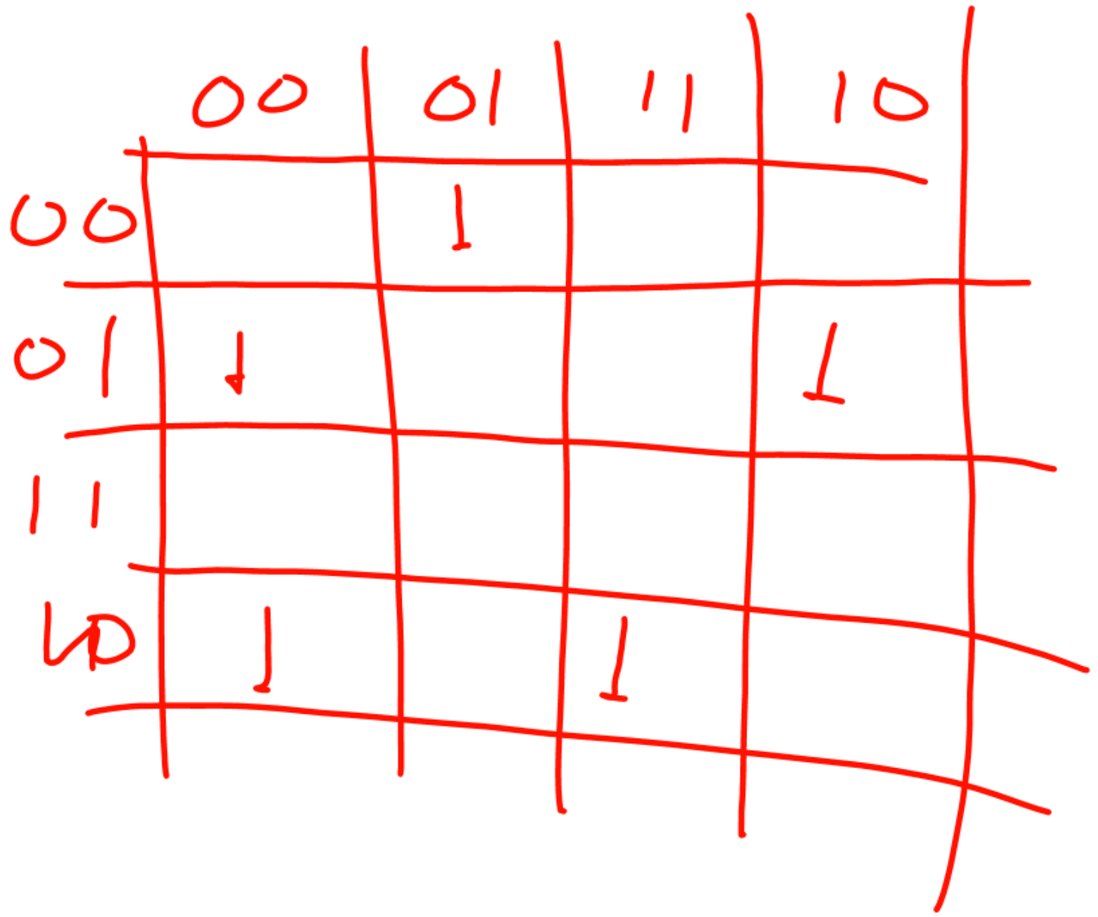
00/01/11/10

$\Sigma\{0, 3, 4, 5\}$

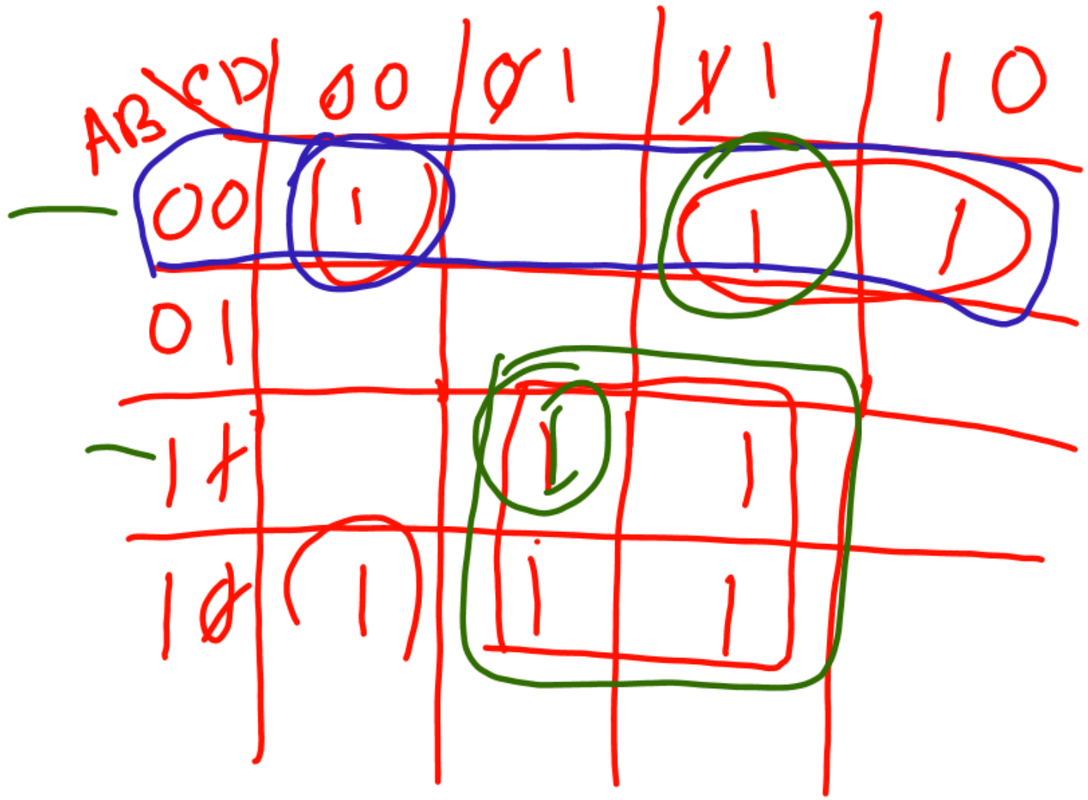
$\{\}_{-}0, 2, 3\}$



$\Sigma\{1, 4, 6, 8, 11\}$



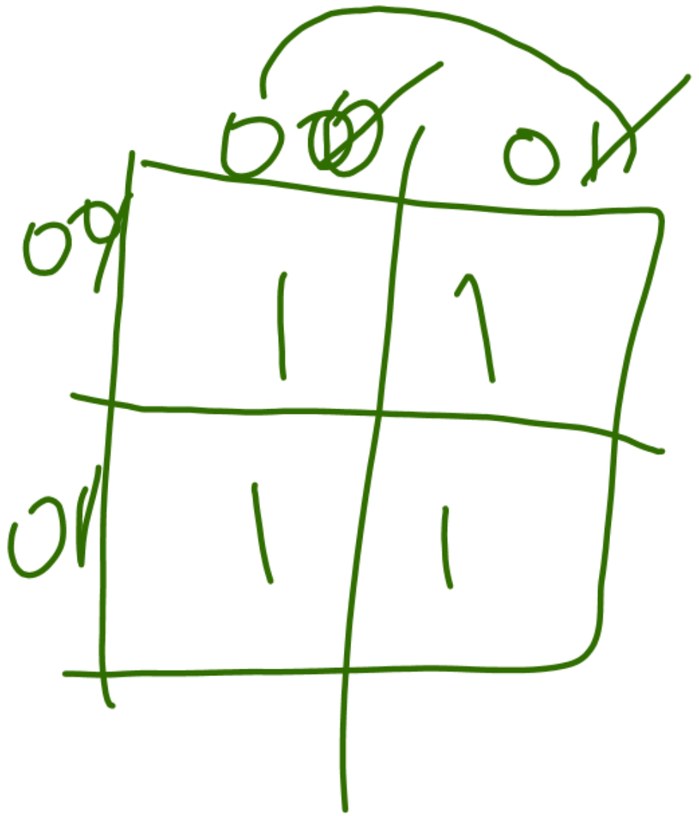
$\sum \{0, 2, 3, 8, 9, 11, 13, 15\}$



8 4 2 1

11 01 OD

$= AD + \bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C$



$= \bar{A}\bar{C}$

Decoder / Encoder / Mux

n - input

2^n - output

$D_0 = \bar{A}\bar{B}$ | $D_3 = AB$

$D_1 = \bar{A}B$

$D_2 = A\bar{B}$

A	B	D_0	D_1	D_2	D_3
0	0	1	0	0	0
0	1	0	1	0	0
1	0	0	0	1	0
1	1	0	0	0	1

E	A	B	D_0	D_1	D_2	D_3
0	X	X	0	0	0	0
1	0	0	1	0	0	0
1	0	1	0	1	0	0
1	1	0	0	0	1	0
1	1	1	0	0	0	1

$$E\left(\bar{A}\bar{B}+A\bar{B}+\bar{A}B+AB\right)$$

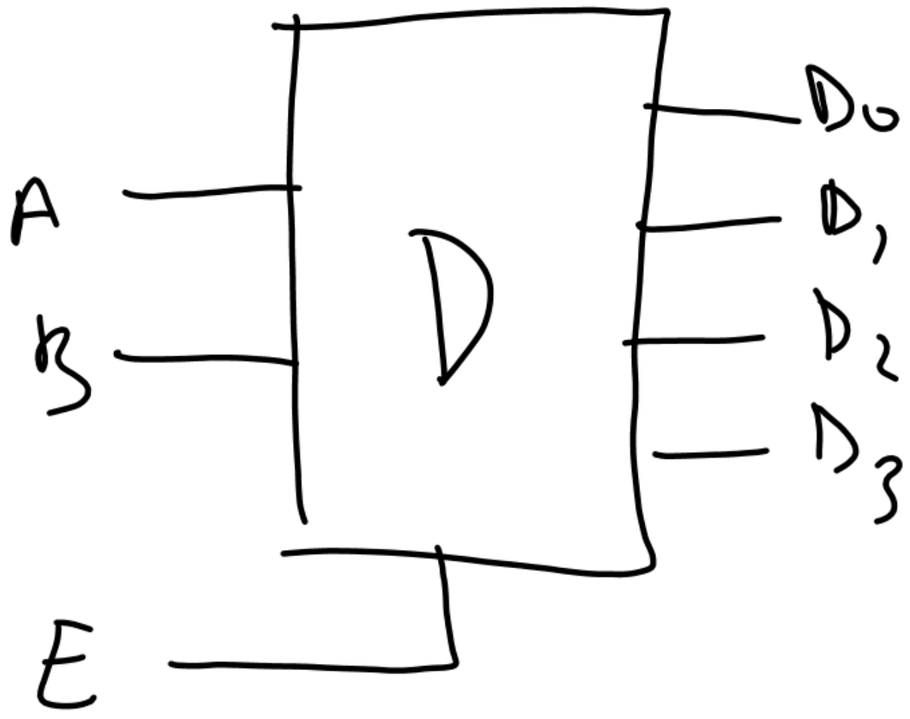
Encoder

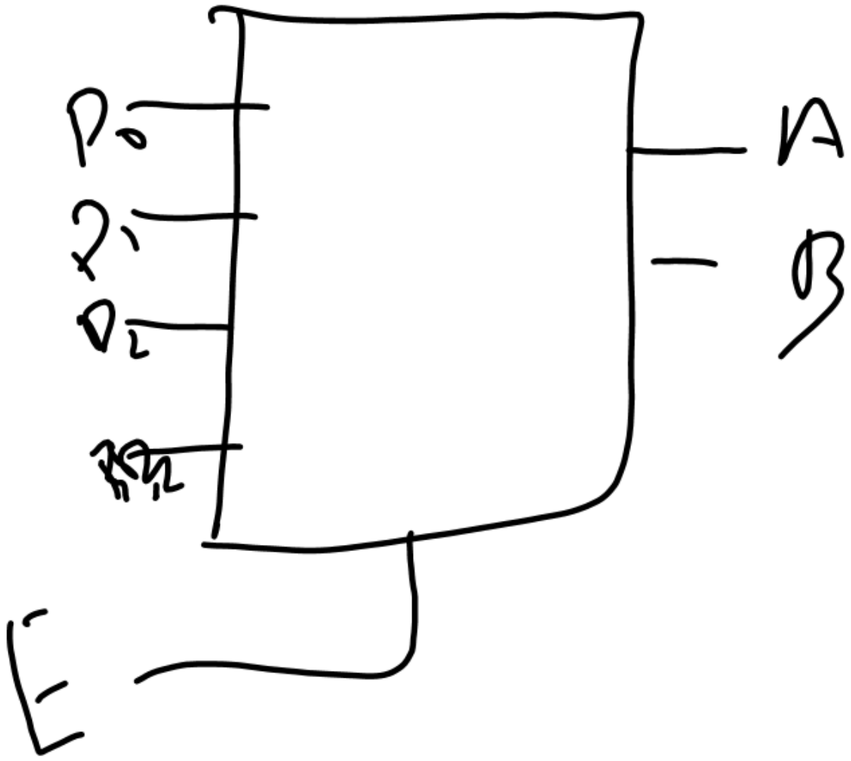
	E	A	B	C	D	D_0	D_1
→	0	X	X	X	X		
	1	1	0	0	0	0	0
	1	0	1	0	0	0	1
	1	0	0	1	0	1	0
	1	0	0	0	1	1	1

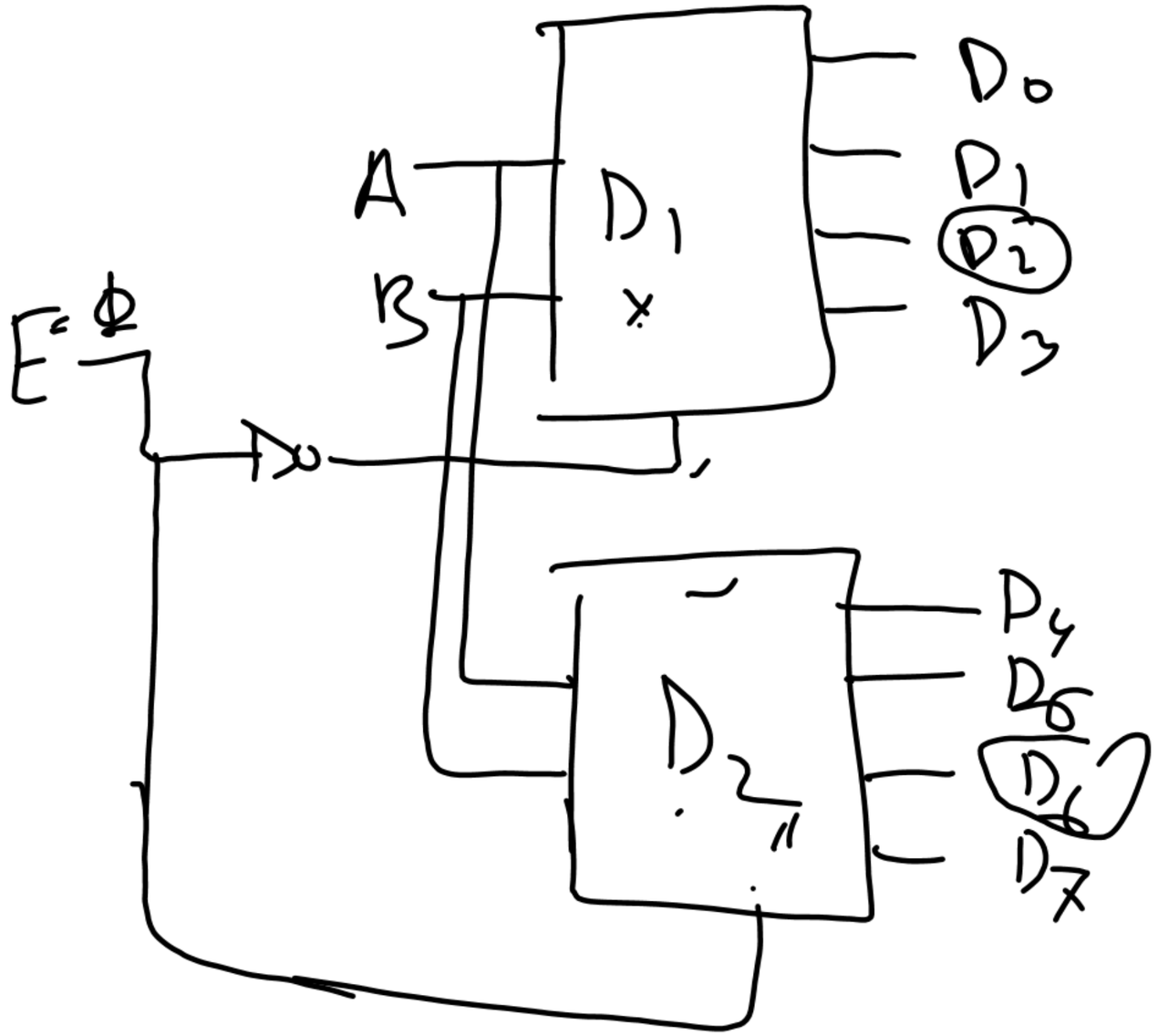
$D_0 = \bar{A}\bar{B}C\bar{D} + \bar{A}\bar{B}\bar{C}D$

$D_1 = \bar{A}B\bar{C}\bar{D} + \bar{A}B\bar{C}D$

Decoder







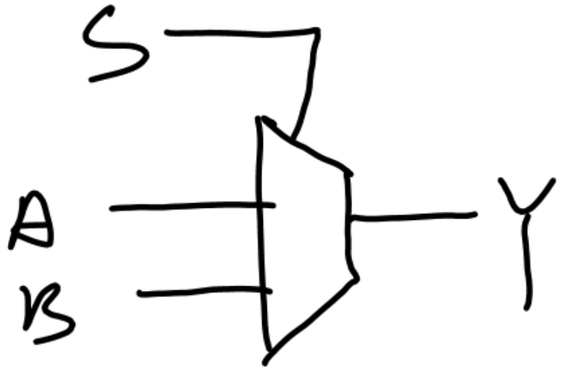
E	A	B	
0	0	0	D_0
0	0	1	D_1
0	1	0	D_2
0	1	1	D_3
1	0	0	D_4
1	0	1	D_5
1	1	0	D_6
1	1	1	D_7

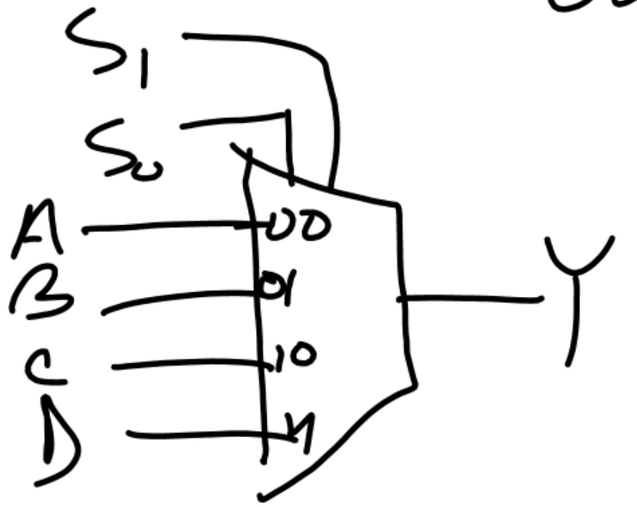
MUX

$S \rightarrow n$

$\text{Input} = 2^n$

Output = 1





S_1	S_0	Y
0	0	A
0	1	B
1	0	C
1	1	D

S	Y
0	A
1	B