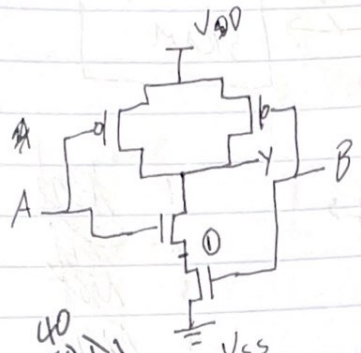
0.875 Xor2 (optional (10 pts)), NAND2, ~~Nor2~~, NOR3 } schematic layout

NAND3 - schematic ✓

NAND2:

I: 50n

W: 100n



A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

40λ × 24λ

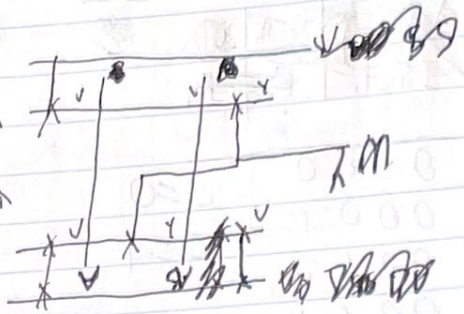
Y: 5 × 8λ = 40λ

X: 3 × 8λ = 24λ

Pun { (VSS), B, (1), A, (Y) }

Pun { (VDD), B, (Y), A, (VDD) }

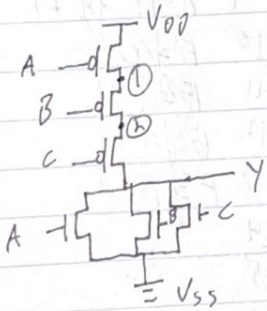
E { B, A }



2 did it each ways

~~NAND~~ NOR3:

A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0



32λ × 40λ

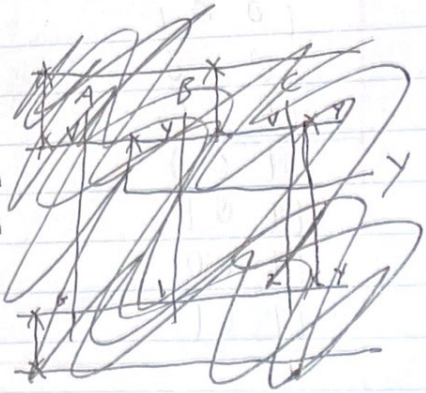
Pun { (VDD), A, (1), B, (2), C, (Y) }

Pun { (VSS), A, (Y), B, (VSS), C, (Y) }

E { A, B, C }

X: 4 × 8λ = 32λ

Y: 5 × 8λ = 40λ



Xor2:

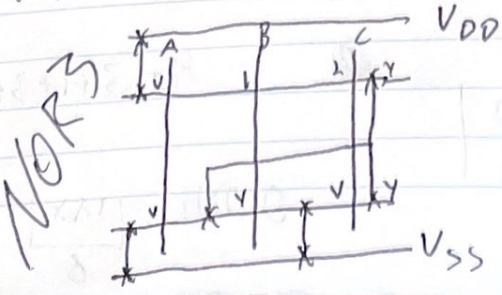
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

$\bar{A}B + A\bar{B} = Y$

$\overline{\bar{A}B + A\bar{B}}$

$\overline{(A+\bar{B})(\bar{A}+B)}$

NOR3



$740 \cdot 3E^{-9}$

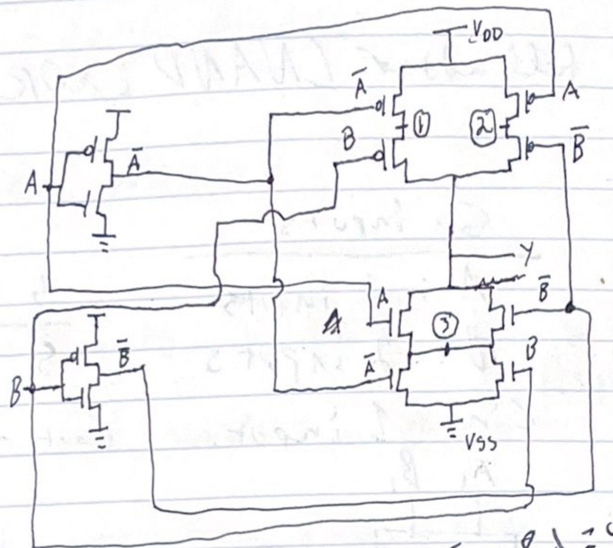
$\overline{(A+\bar{B})(\bar{A}+B)} = Y$

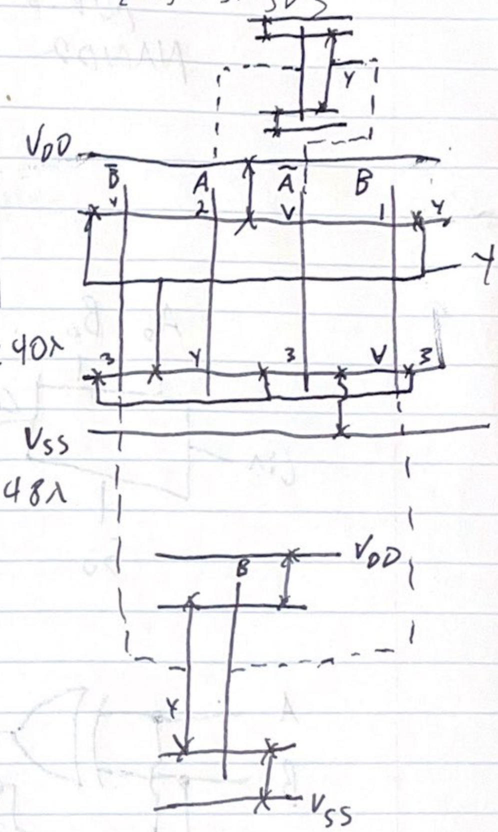
PUN {Y, $\bar{B}$, 2, A, VDD, $\bar{A}$, 1, B, Y}

PDN {3, $\bar{B}$, Y, A, 3, $\bar{A}$, VSS, B, 3}

E {$\bar{B}$, A, $\bar{A}$, B}

XOR2:

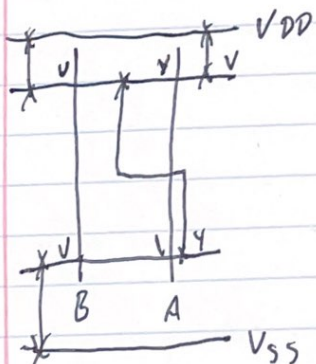




X: 5 (or 6) × 8λ = 40λ

Y: 6 × 8λ = 48λ

40λ × 48λ
or
48λ × 48λ



Note

Run REX not LVS.

Netlist format: HSpice

☑ view Netlist after

☒ Layout names