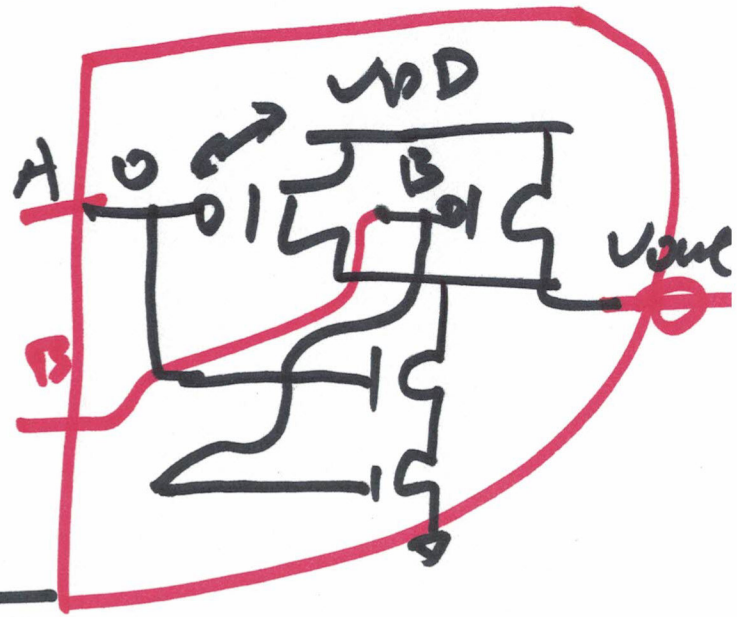
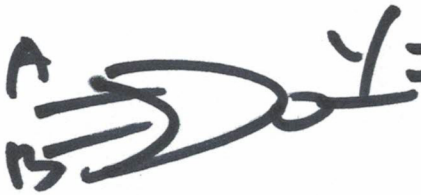
NAND

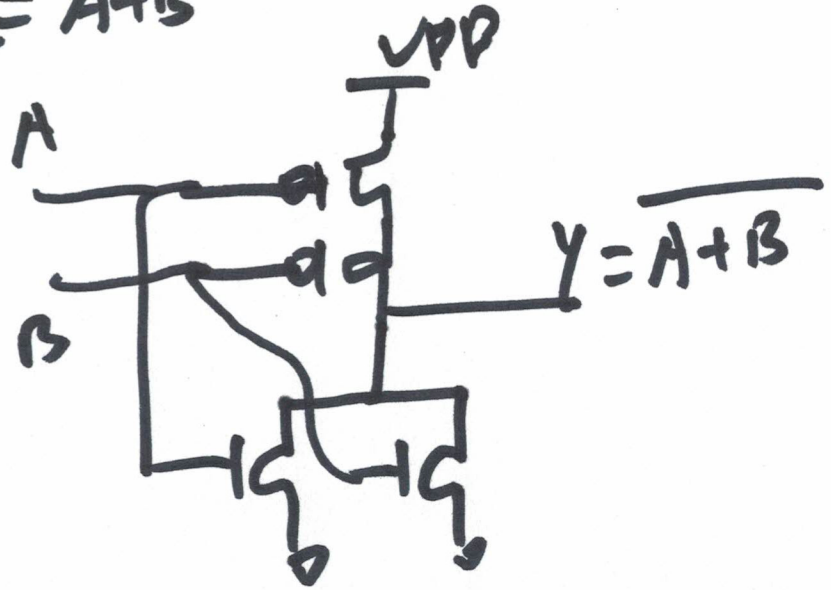
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

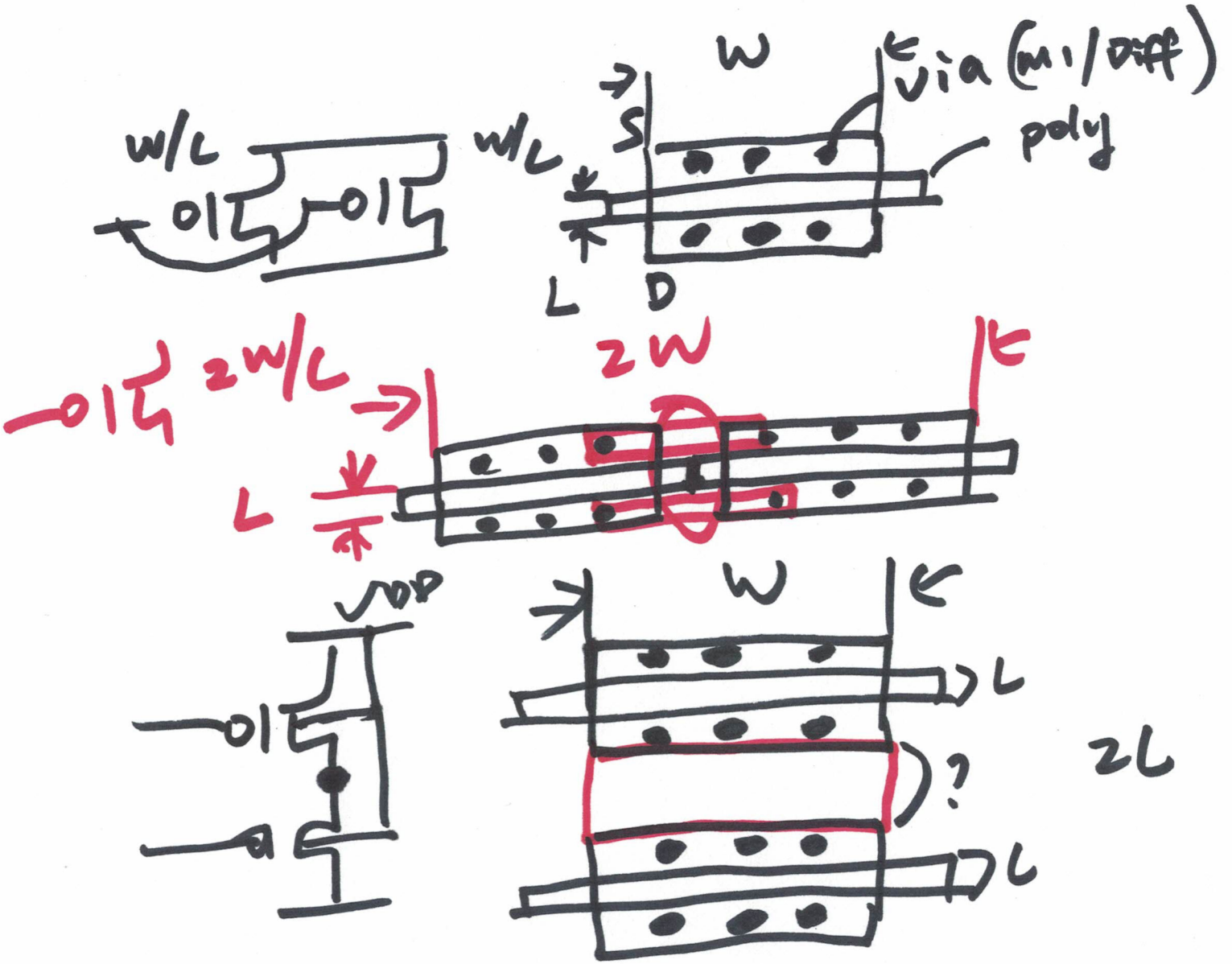


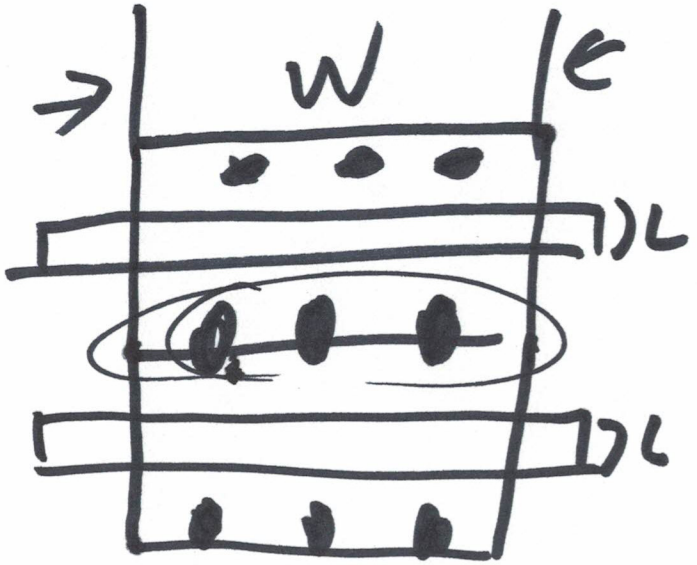
NOR

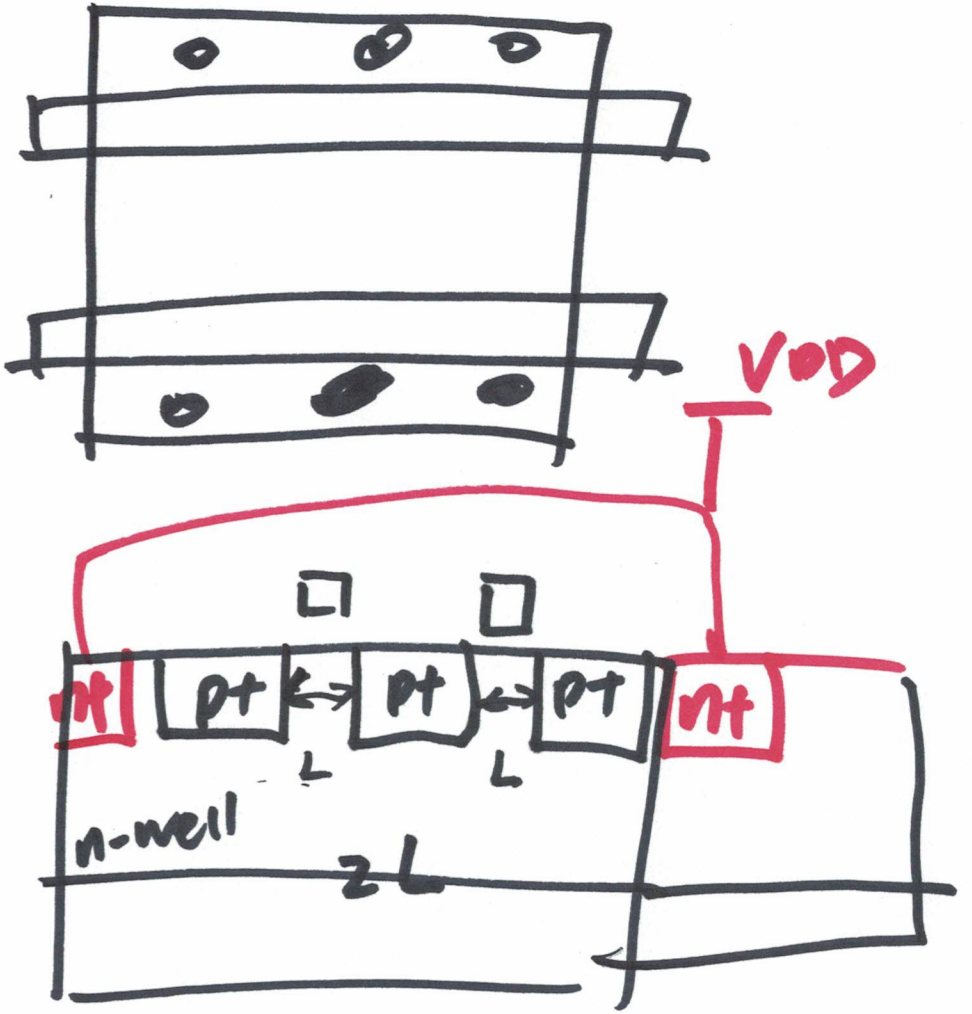


A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0



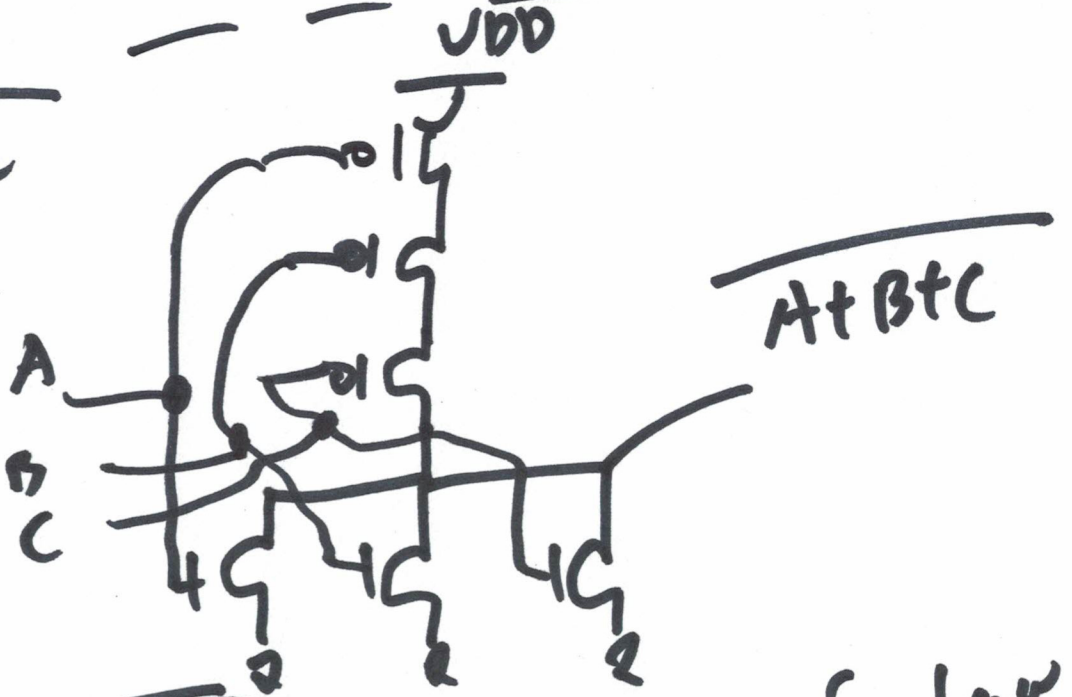

W
via (m1/diff)
poly
W/L
W/L
S
L
D
2W/L
2W
L
VDD
W
L
?
2L
L


W
L
L


VDD
nt
pt
pt
pt
nt
L
L
n-well
2L

AOI : AND OR Inverter

$\overline{A+B+C}$



$Y = \bar{A}+BC = \overline{\bar{A}+BC}$

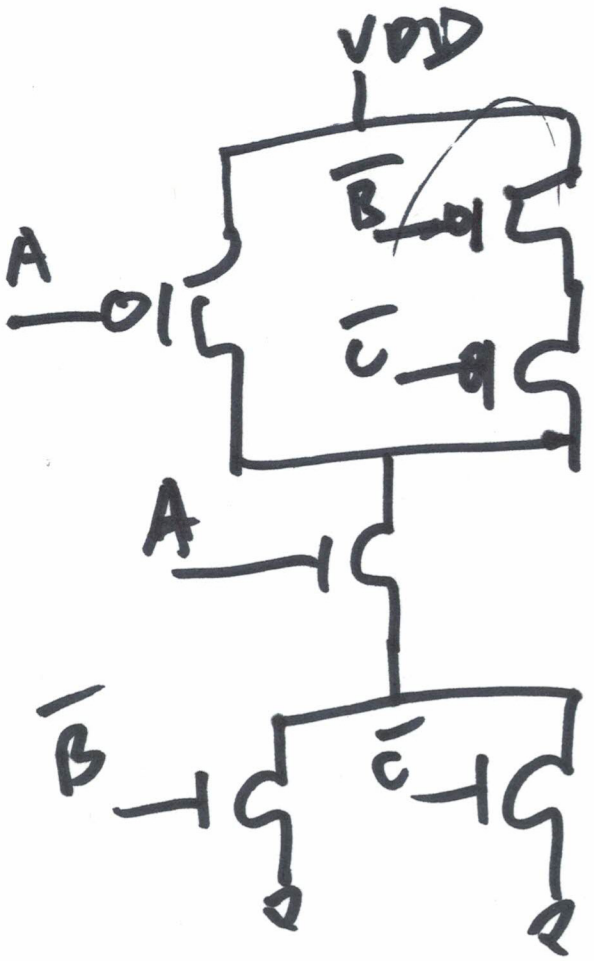
$= \overline{\bar{A}\cdot\overline{BC}} = \overline{A\cdot(\bar{B}+\bar{C})}$

demorgan's law

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

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

(2) (4)



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

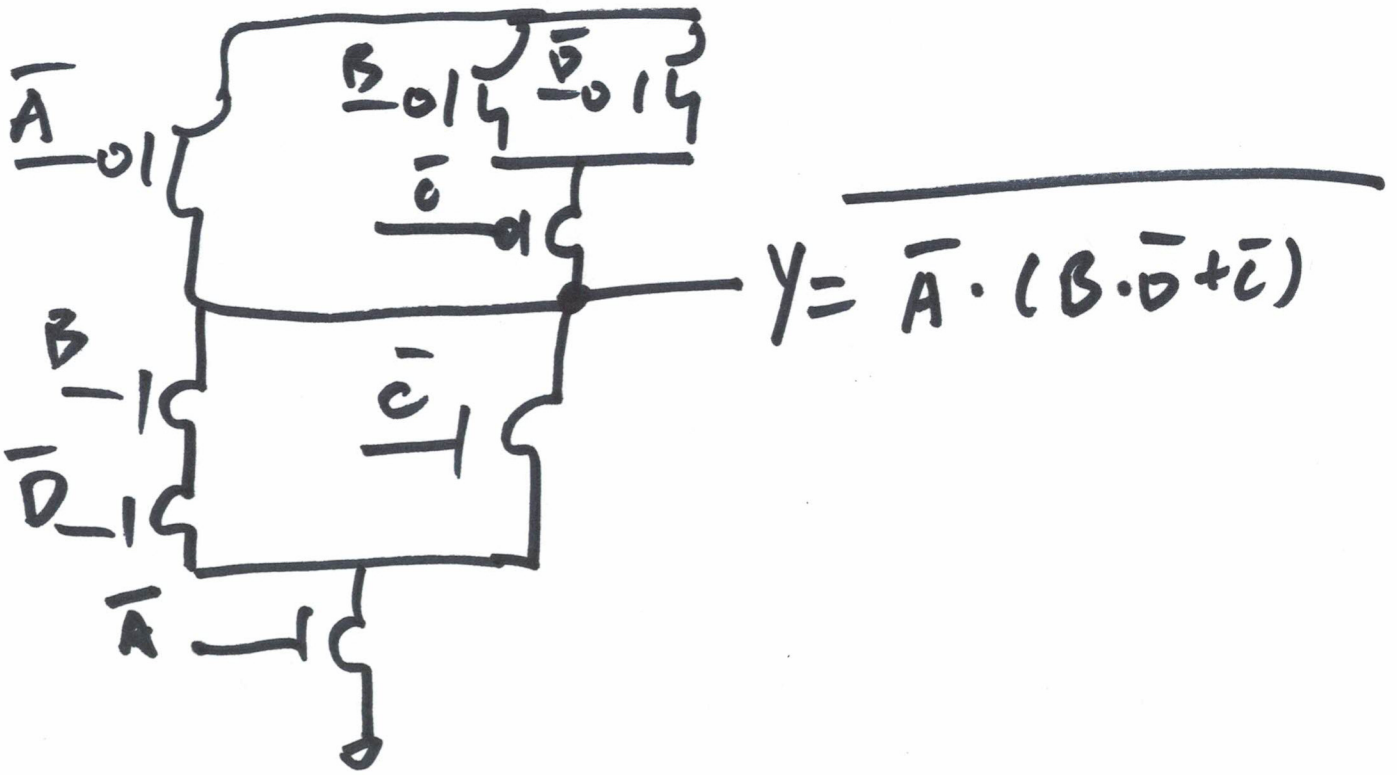
$$= \overline{A + (\bar{B} + D) \cdot C}$$

$$= \overline{\bar{A} \cdot \overline{(\bar{B} + D) \cdot C}}$$

$$= \overline{\bar{A} \cdot \left(\overline{(\bar{B} + D)} + \bar{C}\right)}$$

$$= \overline{\bar{A} \cdot \left(\bar{\bar{B}} \cdot \bar{D} + \bar{C}\right)}$$

$$= \overline{\bar{A} \cdot \left(C\underline{B \cdot \bar{D}} \pm \bar{C}\right)}$$


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