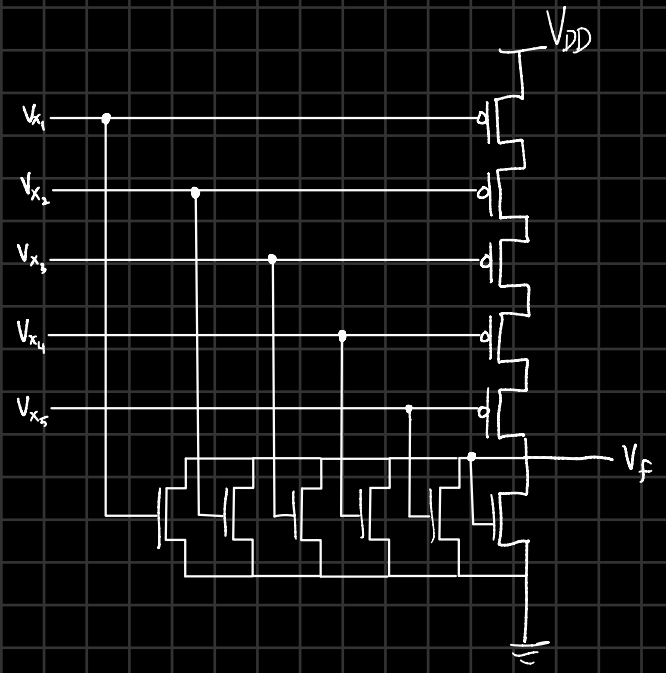
HW 7

Q1 $9 = 1001$ $3 = 0011$

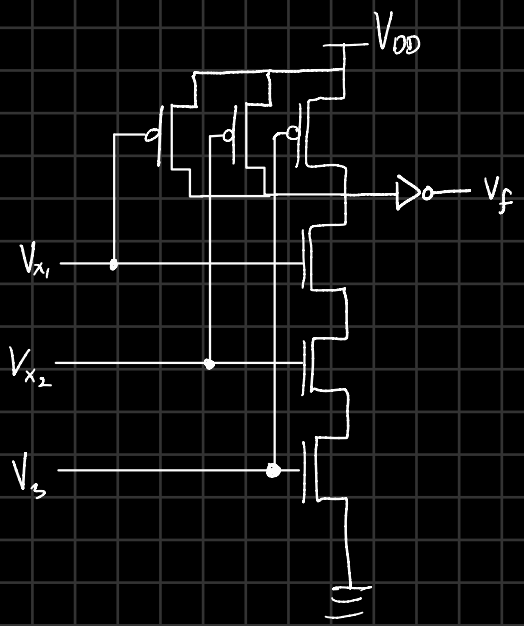
$$
\begin{array}{r}
1001 \\
\times\ 0011 \\
\hline
1001 \\
1001 \\
\hline
1101 \\
0000 \\
\hline
11011
\end{array}
= 27
$$

Q2.

a) 5-input NOR

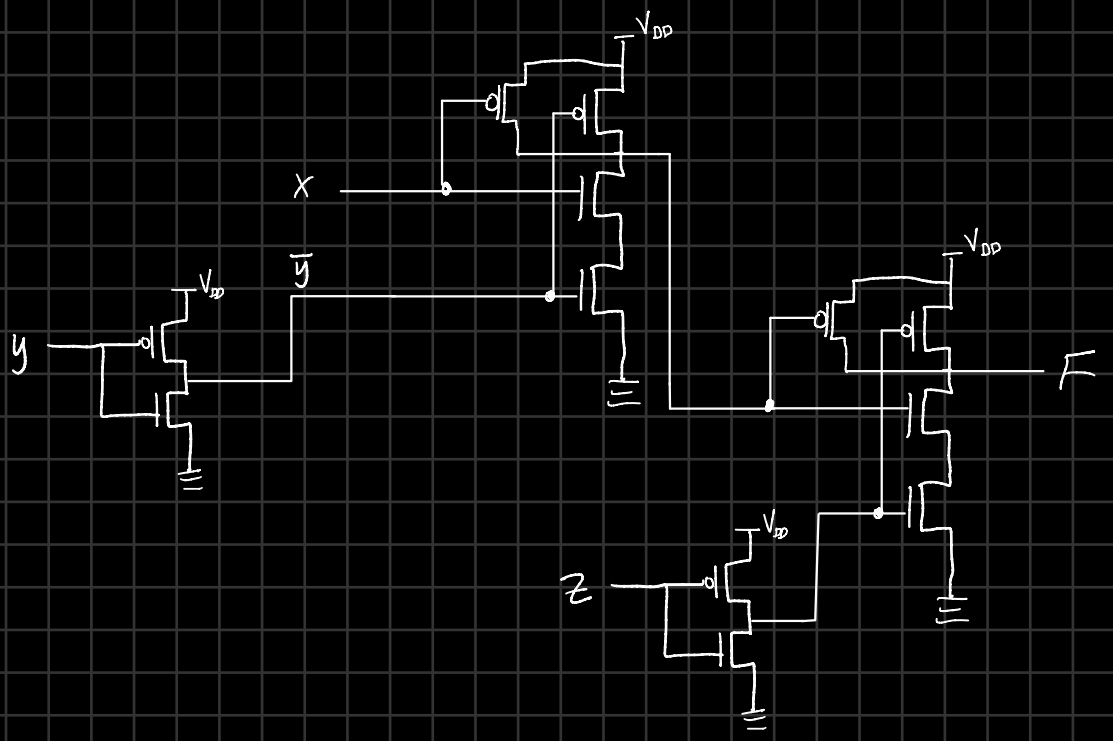


b) 3-input AND



NAND

Q3 $F = x\bar{y} + z = \overline{(\overline{x\bar{y}})\bar{z}}$



Q4.

a) $F = \bar{A}\bar{B}\bar{C} + \bar{A}BC + A\bar{B}(1) + AB(0)$

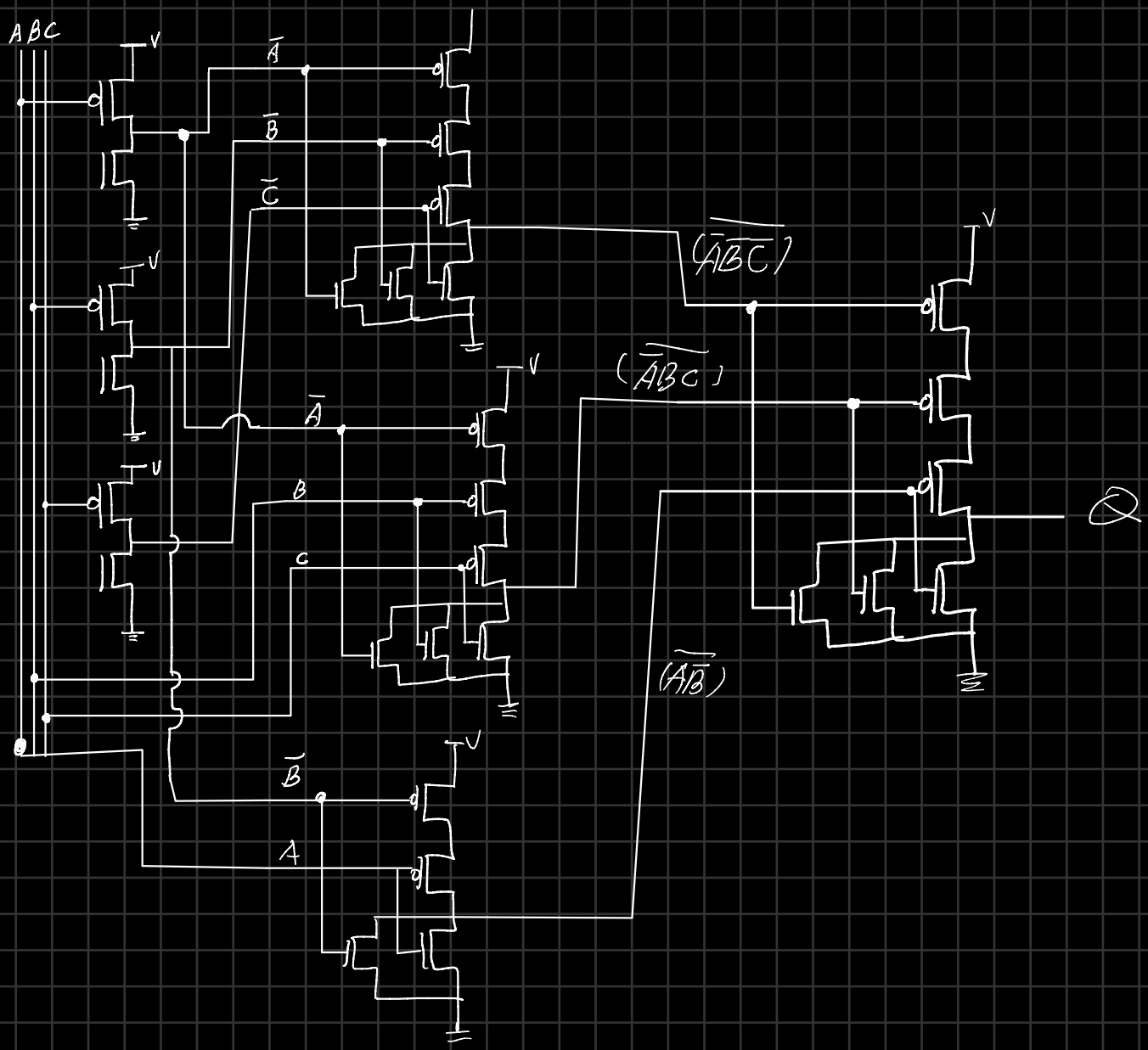
$= \bar{A}\bar{B}\bar{C} + \bar{A}BC + A\bar{B}$

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

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

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

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


A B C
V
$\bar{A}$
$\bar{B}$
$\bar{C}$
$\overline{(\bar{A}BC)}$
$\overline{(\bar{A}\bar{B}C)}$
$\overline{(A\bar{B})}$
B
c
A
Q