



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

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

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

$$\neq \bar{A} \cdot (\bar{B}C \cdot CD)$$

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

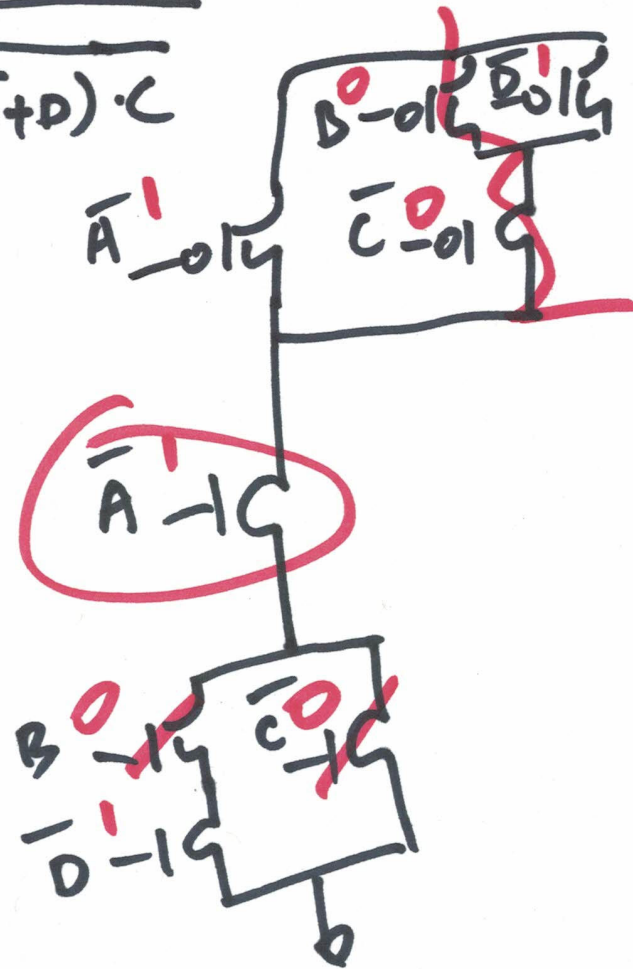
$$= \bar{A} \cdot (C\bar{B} \cdot \bar{D}) + \bar{C}$$

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

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

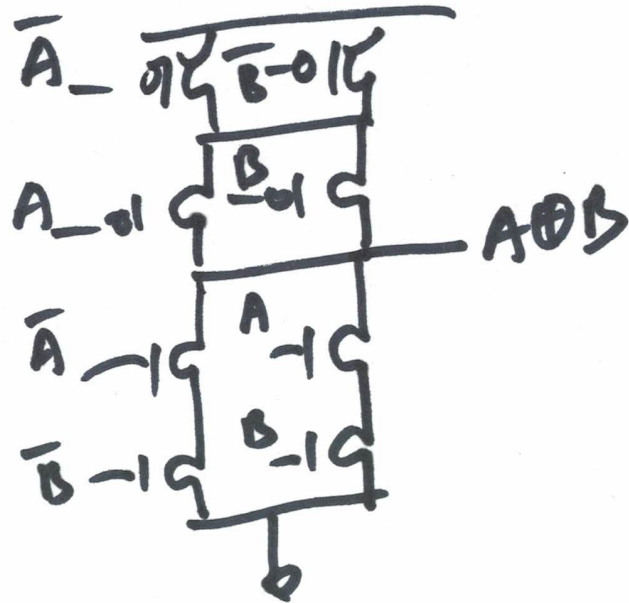
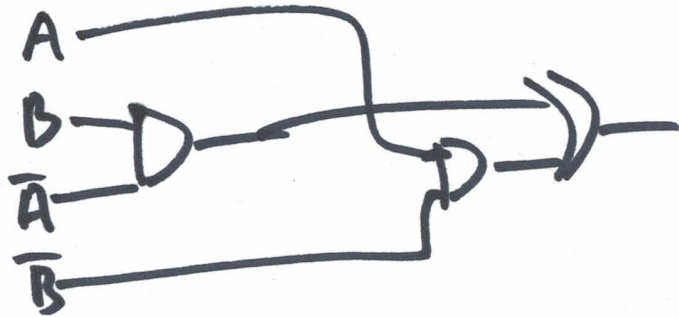
1 - 0 1 0  
1 · (0 + 0)

$$= 1$$



②

$$\underline{A \oplus B = \bar{A}B + A\bar{B} = \overline{A \odot B} = \overline{\bar{A}\bar{B} + AB}}$$



(3)

# Stick Diagrams

PMOS:  **contact**  
 NMOS:  **Gate**

**channel.**

