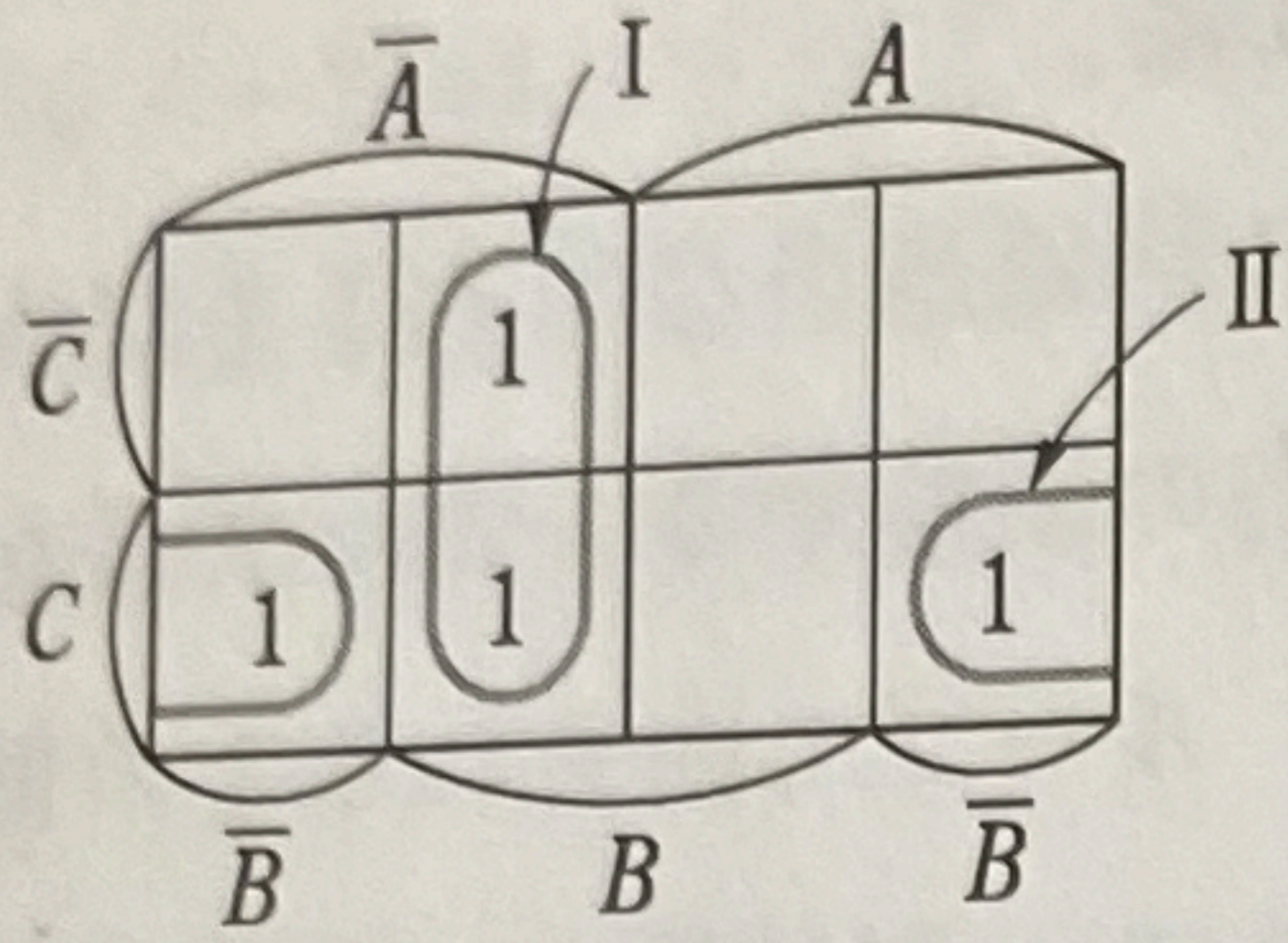


$$(3) X = \bar{A}\bar{B}C + \bar{A}BC + ABC + ABC$$

ループ I から $\bar{A}B$

ループ II から $\bar{B}C$

$$\therefore X = \bar{A}B + \bar{B}C$$

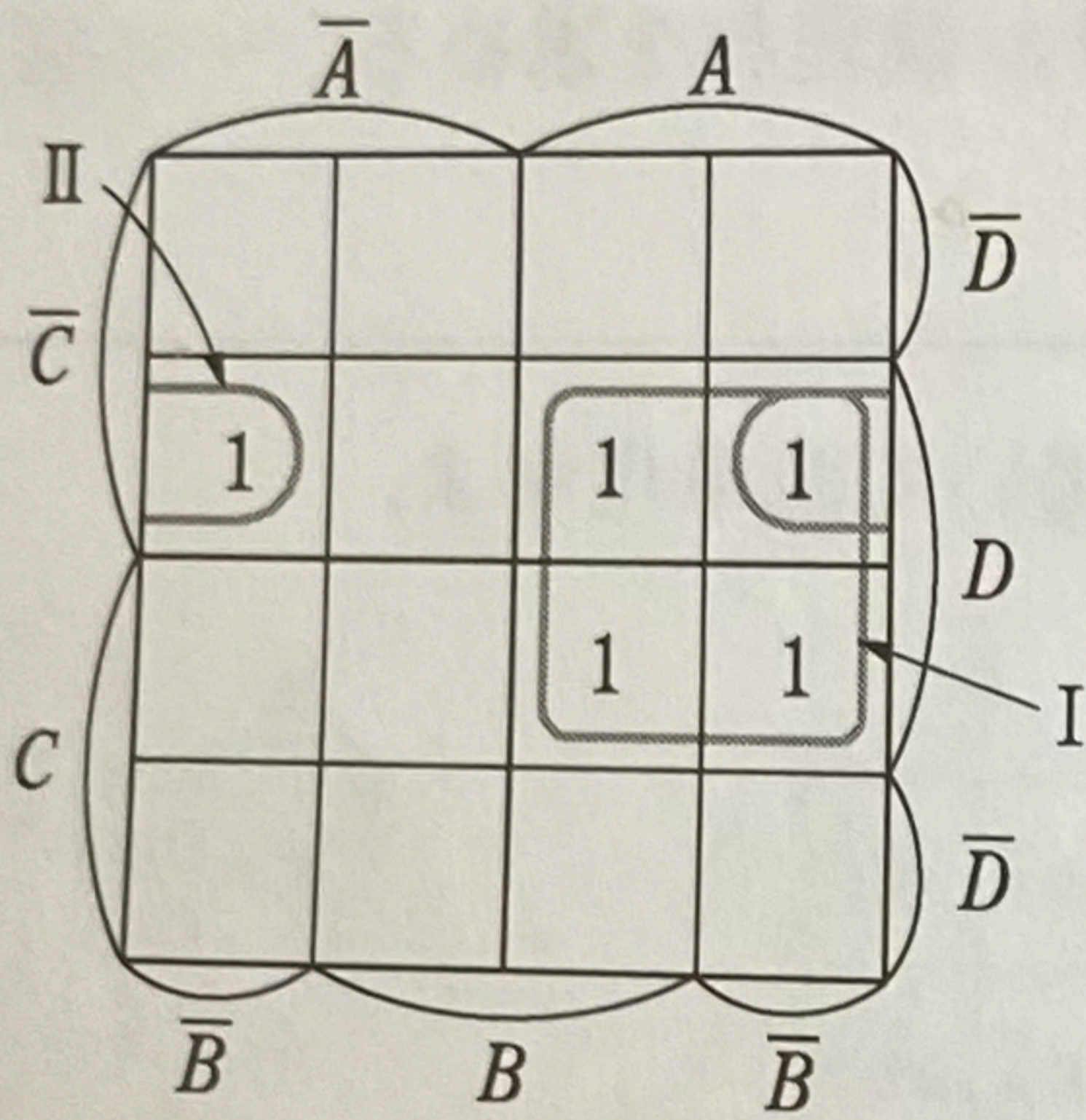


$$(4) X = \bar{A}\bar{B}\bar{C}D + A\bar{B}\bar{C}D + A\bar{B}CD + AB\bar{C}D + ABCD$$

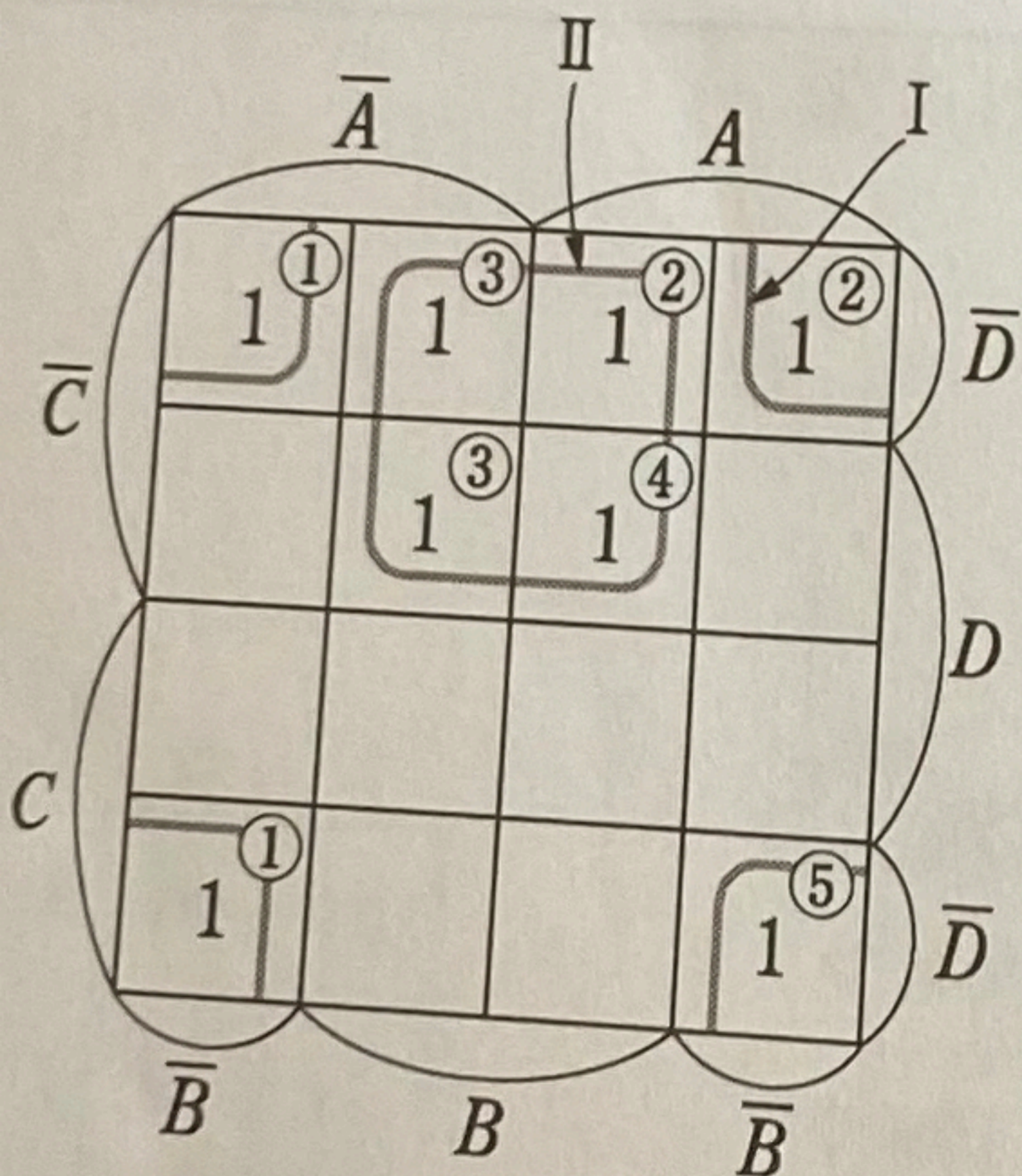
ループ I から AD

ループ II から $\bar{B}\bar{C}D$

$$\therefore X = AD + \bar{B}\bar{C}D$$



$$(5) X = \underbrace{\bar{A}\bar{B}\bar{D}}_{\textcircled{1}} + \underbrace{A\bar{C}\bar{D}}_{\textcircled{2}} + \underbrace{\bar{A}B\bar{C}}_{\textcircled{3}} + \underbrace{AB\bar{C}D}_{\textcircled{4}} + \underbrace{A\bar{B}C\bar{D}}_{\textcircled{5}}$$



$$\textcircled{1} \bar{A}\bar{B}\bar{D} = \bar{A}\bar{B}\bar{D}(C + \bar{C})$$

$$\textcircled{2} A\bar{C}\bar{D} = A\bar{C}\bar{D}(B + \bar{B})$$

$$\textcircled{3} \bar{A}B\bar{C} = \bar{A}B\bar{C}(D + \bar{D})$$

とおけるから、カルノー図を用いて、

ループ I より $\bar{B}\bar{D}$

ループ II より $B\bar{C}$

$$\therefore X = \bar{B}\bar{D} + B\bar{C}$$