$F = \bar{A}\bar{B}C\bar{D} + \bar{A}\bar{B}CD + \bar{A}B\bar{C}\bar{D} + \bar{A}BCD + A\bar{B}\bar{C}\bar{D} + A\bar{B}C\bar{D} + ABC\bar{D}$

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

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

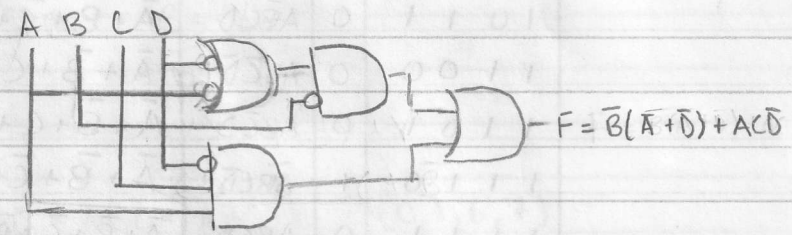
$= \bar{A}\bar{B} + A\bar{B}\bar{D} + ABC\bar{D} = \bar{A}\bar{B} + \bar{D}(A\bar{B} + ABC) = \bar{A}\bar{B} + \bar{D}(A(\bar{B} + BC))$

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

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

$= \bar{B}(\bar{A} + A\bar{D}) + AC\bar{D}$ ←

$= \boxed{\bar{B}(\bar{A} + \bar{D}) + AC\bar{D}}$



POS Form: $Y = F(A,B,C,D) = (A+\bar{B}+C+D)(A+\bar{B}+C+\bar{D})(A+\bar{B}+\bar{C}+D)(A+\bar{B}+\bar{C}+\bar{D})$
$(\bar{A}+B+C+\bar{D})(\bar{A}+B+\bar{C}+\bar{D})(\bar{A}+\bar{B}+C+D)(\bar{A}+\bar{B}+C+\bar{D})(\bar{A}+\bar{B}+\bar{C}+\bar{D})$

$= \Pi(4,5,6,7,9,11,12,13,15)$