

1. Simplify the following Boolean expressions to minimum number of literals
 - a. $xyz' + x'yz + xyz + x'yz'$
 - b. $(x + y + z')(x' + y' + z)$
 - c. $(BC' + A'D)(AB' + CD')$
 - d. $A'B(D' + C'D) + B(A + A'CD)$
2. Implement the Boolean function $F = xy + x'y' + y'z$ with
 - a. AND, OR and NOT gates
 - b. NAND and NOT gates
 - c. NOR and NOT gates
3. Express the following functions in sum-of-products form
 - a. $F(A, B, C, D) = \sum(3, 4, 9, 11, 15)$
 - b. $F(x, y, z) = \prod(2, 4, 5, 7)$
4. Convert the following to the other canonical form
 - a. $F(x, y, z) = \sum(2, 5, 6)$
 - b. $F(A, B, C, D) = \prod(0, 1, 2, 4, 5, 9, 12)$
5. Simplify using K-Maps
 - a. $F(x, y, z) = \sum(2, 3, 6, 7)$
 - b. $F(A, B, C, D) = \sum(3, 7, 11, 13, 14, 15)$
 - c. $F(w, x, y, z) = \sum(2, 3, 12, 13, 14, 15)$
 - d. $F = A'B'C'D' + AC'D' + B'CD' + A'BCD + BC'D$
 - e. $F = x'z + w'xy' + w(x'y + xy')$