



Tutorial 4

1) Simplify the following Functions using K-Map

- $F(x, y, z) = \sum(2, 5, 6, 7)$
- $F(A, B, C) = \sum(0, 2, 6, 7)$
- $F(A, B, C) = \sum(0, 1, 2, 3, 7)$
- $F(A, B, C) = \sum(1, 6, 7)$
- $F(w, x, y, z) = \sum(1, 4, 5, 6, 12, 14, 15)$
- $F(A, B, C, D) = \sum(0, 1, 5, 8, 9)$

2) Simplify the following Functions using K-Map

- $F(A, B, C) = \prod(2, 3, 4, 6)$
- $F(A, B, C, D) = \prod(0, 2, 8, 10)$

3) Find the minterms of the following Boolean expressions by first plotting each function in a map:

- $F(x, y, z) = xy + yz + xy'z$
- $F(w, x, y, z) = wyz + w'x' + wxz'$

4) Simplify the following Functions using K-Map

- $F(A, B, C, D) = ABC + CD + BC'D + B'C$
- $F(A, B, C, D) = A'B'C'D' + AC'D' + B'CD' + A'BCD + BC'D$
- $F(w, x, y, z) = x'z + w'xy' + w(x'y + xy')$

5) Find a Simplified expression of the **complement** of the following Functions using K-Map

- $F(w, x, y, z) = \sum(0, 1, 4, 5, 6, 7, 8, 9)$

6) Simplify the following Functions together with the don't care conditions

- $F(w, x, y, z) = \sum(2, 3, 4, 5, 12, 13)$, $d(w, x, y, z) = \sum(1, 9, 10, 11)$

7) Simplify the following Function in product of sum form

- $F(w, x, y, z) = x'y' + y'z' + yz' + xy$