

K-Maps & Boolean Equations

Problem Set 1



O₀

$\begin{matrix} I_0 I_1 \\ I_2 I_3 \end{matrix}$	00	01	11	10
00	0	0	1	0
01	0	1	0	0
11	0	0	0	1
10	0	0	0	0

$$O_0 = I_0 I_1 \bar{I}_2 \bar{I}_3 + \bar{I}_0 I_1 \bar{I}_2 I_3 + I_0 \bar{I}_1 I_2 I_3$$

O₁

$\begin{matrix} I_0 I_1 \\ I_2 I_3 \end{matrix}$	00	01	11	10
00	0	1	0	0
01	0	1	0	0
11	1	0	0	0
10	0	0	0	0

$$O_1 = \bar{I}_0 I_1 \bar{I}_2 + \bar{I}_0 \bar{I}_1 I_2 I_3$$

O₂

$\begin{matrix} I_0 I_1 \\ I_2 I_3 \end{matrix}$	00	01	11	10
00	0	0	1	0
01	1	0	0	0
11	0	0	0	1
10	1	0	0	0

$$O_2 = I_0 I_1 \bar{I}_2 \bar{I}_3 + \bar{I}_0 \bar{I}_1 \bar{I}_2 I_3 + I_0 \bar{I}_1 I_2 I_3 + \bar{I}_0 \bar{I}_1 I_2 \bar{I}_3$$

O₃

$\begin{matrix} I_0 I_1 \\ I_2 I_3 \end{matrix}$	00	01	11	10
00	1	1	1	0
01	0	0	0	0
11	0	0	0	0
10	1	0	0	1

$$O_3 = I_1 \bar{I}_2 \bar{I}_3 + \bar{I}_1 I_2 \bar{I}_3 + \bar{I}_0 \bar{I}_1 \bar{I}_3$$