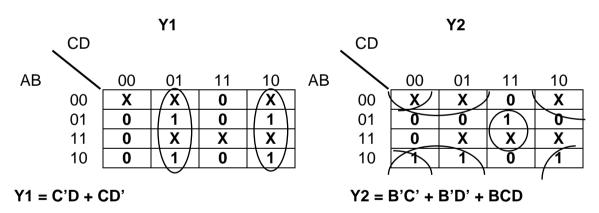
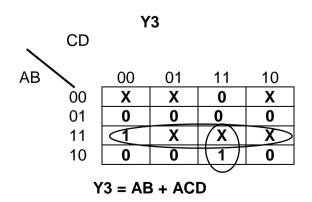
Practice 8 answers:

1. Excess-3 to BCD converter

	Excess-3 input			BCD output				
Decimal	Α	В	С	D	Y3	Y2	Y1	Y0
invalid	0	0	0	0	Х	Х	Х	Х
invalid	0	0	0	1	X	X	X	X
invalid	0	0	1	0	X	X	X	X
0	0	0	1	1	0	0	0	0
1	0	1	0	0	0	0	0	1
2	0	1	0	1	0	0	1	0
3	0	1	1	0	0	0	1	1
4	0	1	1	1	0	1	0	0
5	1	0	0	0	0	1	0	1
6	1	0	0	1	0	1	1	0
7	1	0	1	0	0	1	1	1
8	1	0	1	1	1	0	0	0
9	1	1	0	0	1	0	0	1
invalid	1	1	0	1	X	X	X	X
invalid	1	1	1	0	X	X	X	X
invalid	1	1	1	1	X	X	Х	X

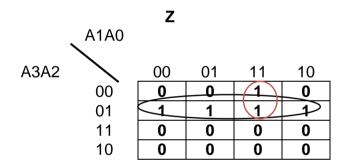
By observation, **Y0 = D'**





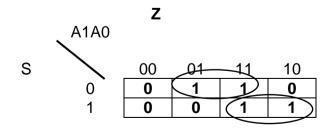
2. Problem 4-7 from Tocci (9th ed.).

A3	A2	A 1	A0	Z
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	1
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	0
1	1	0	0	0
1	1	0	1	0
1	1	1	0	0
1	1	1	1	0



Z = A3' A2 + A3' A1 A0

3. Problem 4.37 from Tocci (9th ed.)



$$Z = S' \bullet A0 + S \bullet A1$$

4. From Q3,

$$Z = S' \bullet A0 + S \bullet A1$$

An enable input EN can be simply added to the circuit with an AND gate:

$$Z = EN \bullet (S' \bullet A0 + S \bullet A1)$$