Solutions to Problems Marked with a * in
Logic and Computer Design Fundamentals, 4th Edition

Chapter 3

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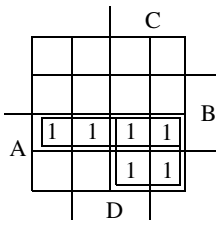
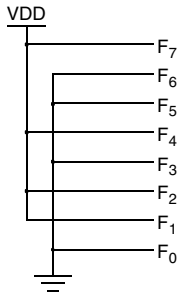
3-2.*



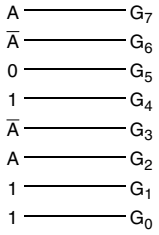
$F = AB + AC$

3-24.*

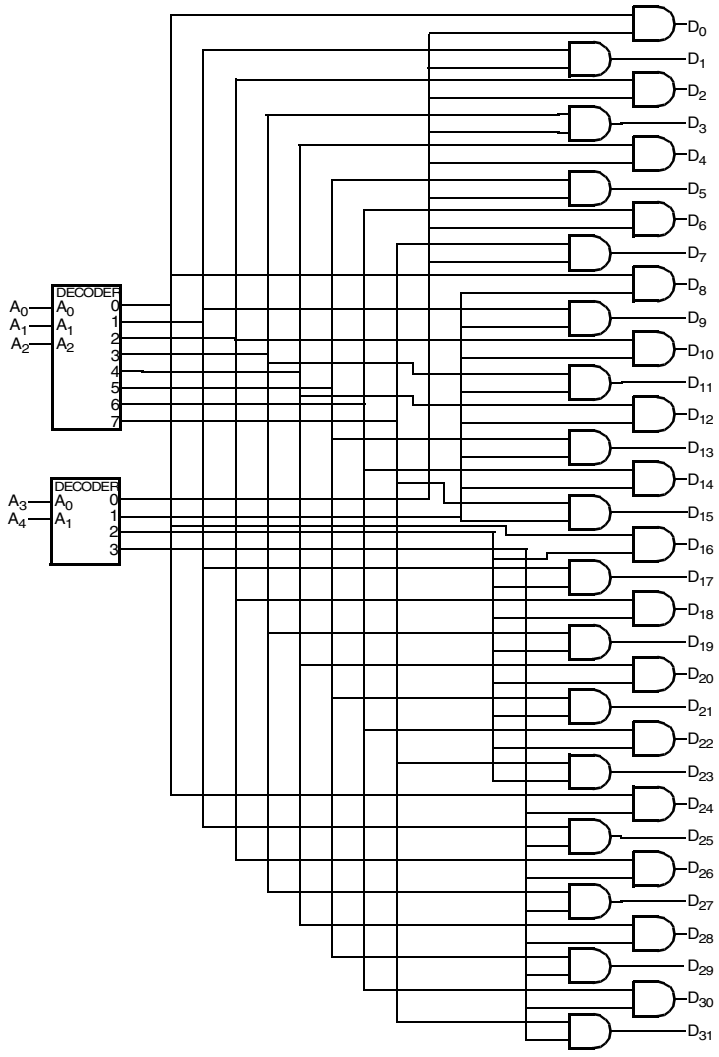
a)



b)



3-30.*



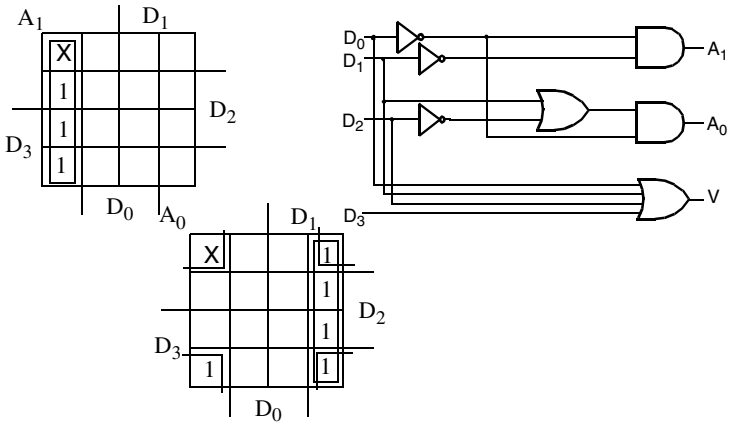
3-35.*

D_3	D_2	D_1	D_0	A_1	A_0	V
0	0	0	0	X	X	0
X	X	X	1	0	0	1
X	X	1	0	0	1	1
X	1	0	0	1	0	1
1	0	0	0	1	1	1

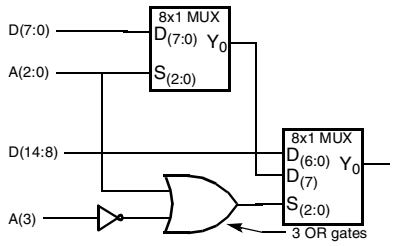
$V = D_0 + D_1 + D_2 + D_3$

$A_0 = \overline{D_0}(D_1 + \overline{D_2})$

$A_1 = \overline{D_0}\,\overline{D_1}$



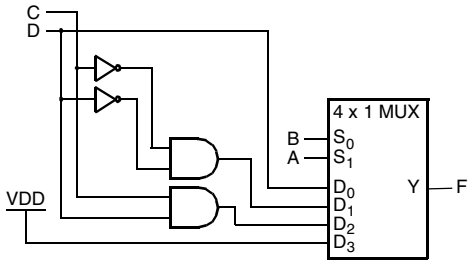
3-42.*



3-43.*

A_1	A_0	E	D_0	D_1	D_2	D_3
0	0	0	0	0	0	0
0	0	1	1	0	0	0
0	1	0	0	0	0	0
0	1	1	0	1	0	0
1	0	0	0	0	0	0
1	0	1	0	0	1	0
1	1	0	0	0	0	0
1	1	1	0	0	0	1

Consider E as the data input and A0, A1 as the select lines. For a given combination on (A1, A0), the value of E is distributed to the corresponding D output. For example for (A1, A0) = (10), the value of E appears on D2, while all other outputs have value 0.

3-47.*

A	B	C	D	F	
0	0	0	0	0	
0	0	0	1	1	F=D
0	0	1	0	0	
0	0	1	1	1	
0	1	0	0	1	
0	1	0	1	0	$F=\overline{C}\,\overline{D}$
0	1	1	0	0	
0	1	1	1	0	
1	0	0	0	0	
1	0	0	1	0	
1	0	1	0	0	F=C D
1	0	1	1	1	
1	1	0	0	1	
1	1	0	1	1	
1	1	1	0	1	F=1
1	1	1	1	1