

Prove a boolean equality (2.48)

Friday, August 25, 2017

8:45 PM

$$\begin{aligned} & x_2 x_3' x_4' + x_1' x_2 x_4 + x_1' x_2 x_3 + x_1 x_2 x_3 \\ &= x_2 x_4' + x_1' x_2 + x_2 x_3 \end{aligned}$$

$$\begin{aligned} & x_2 (x_3' x_4' + x_1' x_4 + \underbrace{x_1' x_3 + x_1 x_3}_{x_3}) \\ &= (x_4' + x_1' + x_3) x_2 \end{aligned}$$

Find minimum PoS form using algebraic manipulations (2.15)

Friday, August 25, 2017
8:49 PM

$$(x_1 + x_2 + x_3) \cdot (x_1 + x_2' + x_3) \cdot (x_1' + x_2' + x_3) \cdot (x_1 + x_2 + x_3')$$

$$\begin{array}{l} \swarrow \quad \searrow \\ (x_1 + x_3) \quad 1^{st} \& 2^{nd} \quad (a+b) \cdot (a+b') \\ \quad \quad \quad 1^{st} \& 4^{th} \quad a \cdot (b+b') \\ (x_1 + x_2) \quad \quad \quad a \\ (x_2' + x_3) \quad 2^{nd} \& 3^{rd} \end{array}$$

Find minimum PoS form using algebraic manipulations (2.14)

Friday, August 25, 2017
8:49 PM

$$(x_1 + x_3 + x_4) \cdot (x_1 + x_2' + x_3) \cdot (x_1 + x_2' + x_3' + x_4)$$

$$\begin{aligned} & (x_1 + x_2 + x_3 + x_4) \cdot (x_1 + x_2' + x_3 + x_4) \cdot (x_1 + x_2' + x_3 + x_4') \\ & (x_1 + x_2' + x_3' + x_4) \\ & (x_1 + x_3 + x_4) (x_1 + x_2' + x_3) (x_1 + x_2' + x_4) \end{aligned}$$

Sigma and Pi notations

Friday, August 25, 2017
10:38 PM

Prob 2.20 Find min SoP for $f(x_1, x_2, x_3) = \sum m(3, 4, 6, 7)$

Prob 2.23 Find min PoS for $f(x_1, x_2, x_3) = \prod M(0, 1, 5, 7)$

x_1

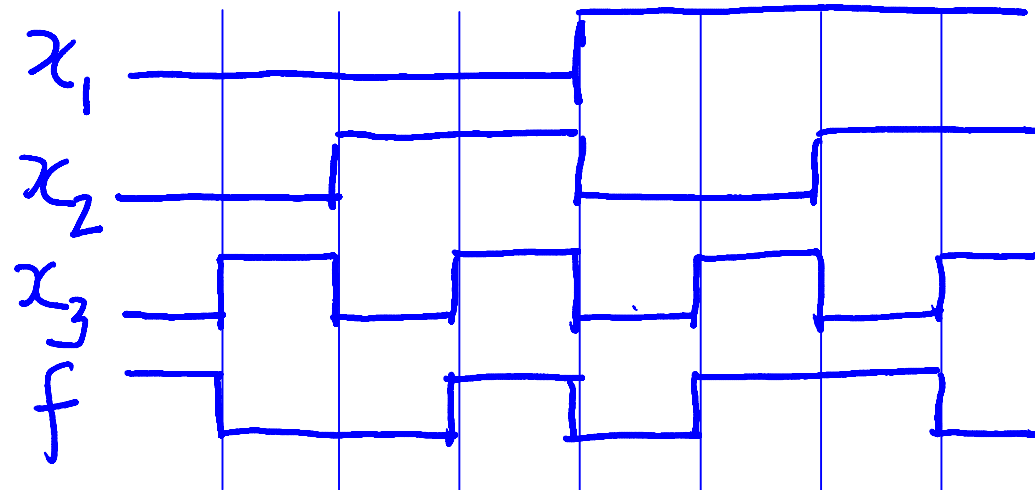
	$x_2 x_3$	00	01	11	10
0	0	0	0	1	1
1	4	1	5	0	1

$$\begin{aligned}
 & (x_1 + x_2 + x_3) \cdot \\
 & (x_1 + x_2 + x_3') \cdot \\
 & (x_1' + x_2 + x_3') \cdot \\
 & (x_1' + x_2' + x_3')
 \end{aligned}$$

$$(x_1 + x_2) \cdot (x_1' + x_3')$$

Synthesize function represented by timing diagram (2.31)

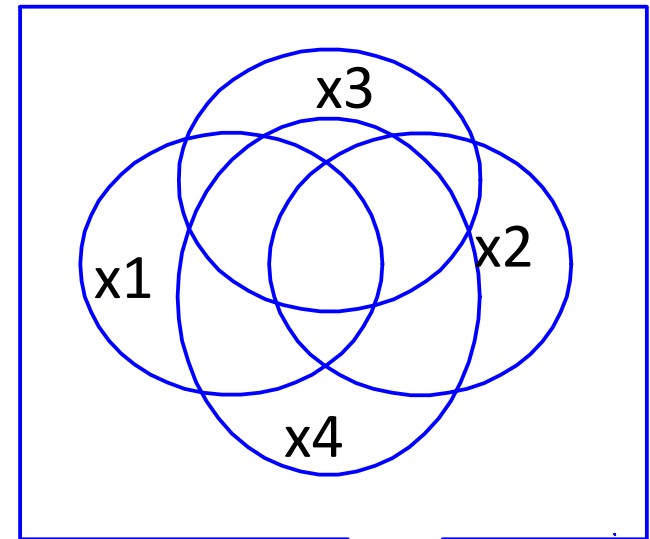
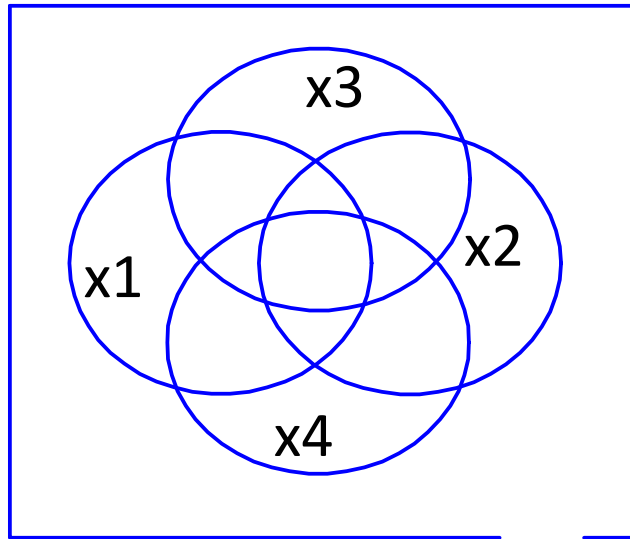
Friday, August 25, 2017
10:45 PM



x_1	x_2	x_3	f
0	0	0	1
0	0	1	0
0	1	0	0
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	0

Venn diagram for 4 variables (2.18)

Friday, August 25, 2017
11:07 PM



Venn diagram for 4 variables (2.19)

Friday, August 25, 2017
11:07 PM

