

Logic Minimization

A B	F
0 0	0
0 1	1
1 0	0
1 1	1

B	0	1
A		
0		
1		

Karnaugh Maps

A B C	F
0 0 0	0
0 0 1	1
0 1 0	0
0 1 1	1
1 0 0	0
1 0 1	1
1 1 0	0
1 1 1	0

BC	0 0	0 1	1 1	1 0
A				
0				
1				

Karnaugh Maps

AB \ CD	00	01	11	10
00				
01				
11				
10				

E

0

AB \ CD	00	01	11	10
00				
01				
11				
10				

1

AB \ CD	00	01	11	10
00				
01				
11				
10				

		F									
		0				1					
E	0	AB \ CD	00	01	11	10	AB \ CD	00	01	11	10
		00					00				
		01					01				
		11					11				
		10					10				
1	0	AB \ CD	00	01	11	10	AB \ CD	00	01	11	10
		00					00				
		01					01				
		11					11				
		10					10				
1	1	AB \ CD	00	01	11	10	AB \ CD	00	01	11	10
		00					00				
		01					01				
		11					11				
		10					10				

Karnaugh Maps

A \ BC	00	01	11	10
0	0	1	1	0
1	0	1	0	0

$F =$

Karnaugh Maps

A \ BC	00	01	11	10
0	0	1	0	1
1	1	0	0	1

$F =$

A \ BC	00	01	11	10
0	0	1	1	1
1	0	1	1	1

$F =$

Karnaugh Maps

A \ BC	00	01	11	10
0	0	0	1	1
1	1	1	1	1

$F =$

Karnaugh Maps

AB \ CD	00	01	11	10
00	0	1	0	0
01	1	1	0	1
11	1	1	0	1
10	1	1	0	1

$F =$

Karnaugh Maps

AB \ CD	00	01	11	10
00	1	0	0	1
01	1	1	0	0
11	1	1	1	1
10	1	0	0	1

$F =$

		E				F =
0	AB \ CD	00	01	11	10	
	00	1	1	0	0	
	01	1	1	0	1	
	11	0	0	0	1	
	10	0	0	0	0	
1	AB \ CD	00	01	11	10	
	00	0	0	0	0	
	01	0	0	0	1	
	11	0	0	0	1	
	10	1	1	1	1	

		0				1				F =
0	AB \ CD	00	01	11	10	AB \ CD	00	01	11	10
	00	1	1	0	0	00	1	1	0	0
	01	1	1	0	1	01	1	1	0	1
	11	0	0	0	1	11	0	0	0	1
	10	0	0	0	0	10	0	0	0	0
1	AB \ CD	00	01	11	10	AB \ CD	00	01	11	10
	00	0	0	0	0	00	0	0	0	0
	01	0	0	0	1	01	0	0	0	1
	11	0	0	0	1	11	0	0	0	1
	10	0	0	0	0	10	1	1	1	1

Karnaugh Maps

A \ BC	00	01	11	10
0	0	1	1	0
1	0	1	0	0

$F =$

Karnaugh Maps

A \ BC	00	01	11	10
0	0	1	0	1
1	1	0	0	1

$F =$

AB \ CD	00	01	11	10
00	0	1	1	0
01	0	1	0	0
11	0	1	0	0
10	1	1	1	1

$F =$

Logic Minimization

Karnaugh Maps

A \ BC	BC			
	00	01	11	10
0	0	1	1	1
1	0	ϕ	ϕ	0

SOP:
 $F =$

POS:
 $F =$

AB \ CD	CD			
	00	01	11	10
00	0	0	0	1
01	ϕ	ϕ	1	ϕ
11	1	1	1	1
10	ϕ	0	ϕ	1

SOP:
 $F =$

POS:
 $F =$