



Karnaughkort

2011

Lkaa



Gray kode

B	A	Boolsk
0	0	$\bar{B}\bar{A}$
0	1	$\bar{B}A$
1	0	$B\bar{A}$
1	1	BA



Karnaugh kort



B \ A	\bar{A}	A
\bar{B}	$\bar{A}\bar{B}$	$A\bar{B}$
B	$\bar{A}B$	AB

B \ A	0	1
0		
1		



2 og 3 variabler

BA	CBA
00	000
01	001
11	011
10	010
	110
	111
	101
	100



3 og 4 variabler



C \ BA	00	01	11	10
0	$\overline{\overline{A}}\overline{\overline{B}}\overline{\overline{C}}$	$\overline{\overline{A}}\overline{\overline{B}}\overline{C}$	$\overline{\overline{A}}\overline{B}\overline{\overline{C}}$	$\overline{\overline{A}}\overline{B}\overline{C}$
1	$\overline{\overline{A}}\overline{B}\overline{\overline{C}}$	$\overline{\overline{A}}\overline{B}C$	$\overline{\overline{A}}\overline{B}C$	$\overline{\overline{A}}\overline{B}\overline{C}$

DC \ BA	00	01	11	10
00	$\overline{\overline{A}}\overline{\overline{B}}\overline{\overline{C}}\overline{\overline{D}}$	$\overline{\overline{A}}\overline{\overline{B}}\overline{\overline{C}}\overline{D}$	$\overline{\overline{A}}\overline{\overline{B}}\overline{C}\overline{\overline{D}}$	$\overline{\overline{A}}\overline{\overline{B}}\overline{C}\overline{D}$
01	$\overline{\overline{A}}\overline{\overline{B}}\overline{C}\overline{\overline{D}}$	$\overline{\overline{A}}\overline{\overline{B}}\overline{C}D$	$\overline{\overline{A}}\overline{\overline{B}}\overline{C}D$	$\overline{\overline{A}}\overline{\overline{B}}\overline{C}\overline{D}$
11	$\overline{\overline{A}}\overline{B}\overline{\overline{C}}\overline{\overline{D}}$	$\overline{\overline{A}}\overline{B}\overline{\overline{C}}\overline{D}$	$\overline{\overline{A}}\overline{B}\overline{C}\overline{\overline{D}}$	$\overline{\overline{A}}\overline{B}\overline{C}\overline{D}$
10	$\overline{\overline{A}}\overline{B}\overline{\overline{C}}\overline{D}$	$\overline{\overline{A}}\overline{B}\overline{\overline{C}}D$	$\overline{\overline{A}}\overline{B}\overline{C}\overline{\overline{D}}$	$\overline{\overline{A}}\overline{B}\overline{C}\overline{D}$



Udarbejdelse af karnaughkort

D	C	B	A	Pos. Nr.
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	0	0	0	8
1	0	0	1	9
1	0	1	0	10
1	0	1	1	11
1	1	0	0	12
1	1	0	1	13
1	1	1	0	14
1	1	1	1	15



Hjælpe kort

	BA	00	01	11	10
DC					
00		0	1	3	2
01		4	5	7	6
11		12	13	15	14
10		8	9	11	10

D	C	B	A	Pos. Nr.
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	0	0	0	8
1	0	0	1	9
1	0	1	0	10
1	0	1	1	11
1	1	0	0	12
1	1	0	1	13
1	1	1	0	14
1	1	1	1	15



Endelige karnaughkort

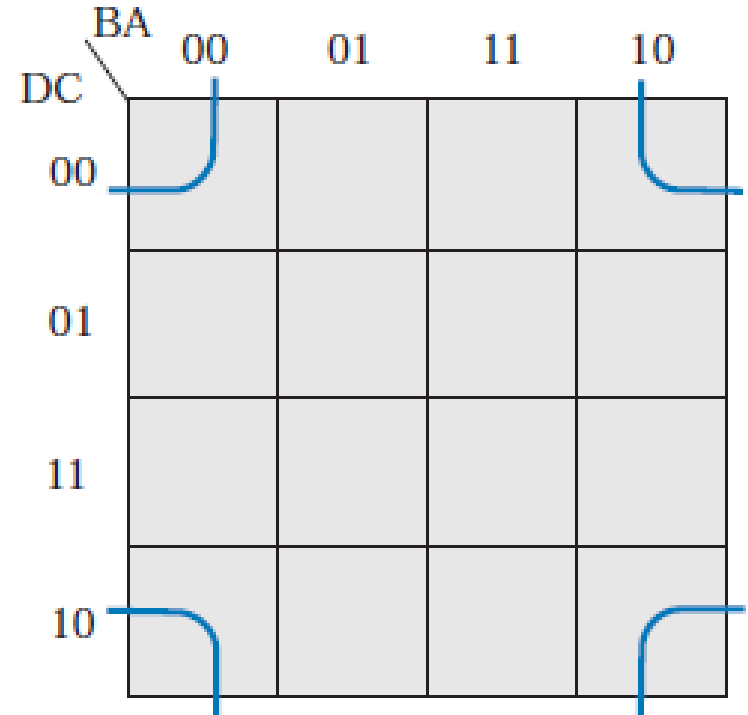
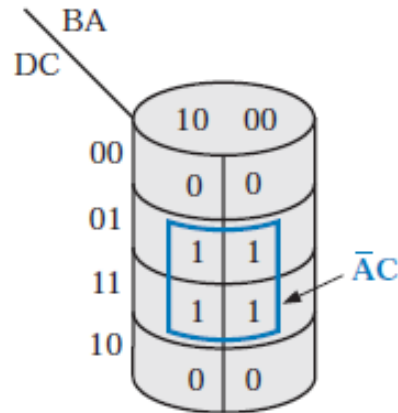
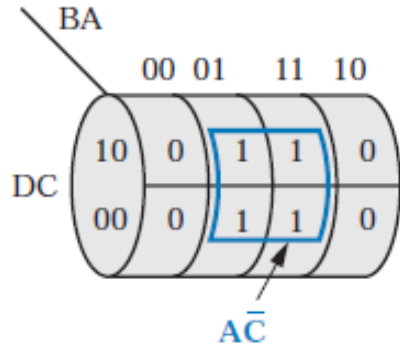


	BA	00	01	11	10
DC					
00		0	0	1	0
01		0	0	1	0
11		0	0	1	1
10		0	0	1	1

D	C	B	A	X	Pos. nr.
0	0	0	0	0	0
0	0	0	1	0	1
0	0	1	0	0	2
0	0	1	1	1	3
0	1	0	0	0	4
0	1	0	1	0	5
0	1	1	0	0	6
0	1	1	1	1	7
1	0	0	0	0	8
1	0	0	1	0	9
1	0	1	0	1	10
1	0	1	1	1	11
1	1	0	0	0	12
1	1	0	1	0	13
1	1	1	0	1	14
1	1	1	1	1	15



Udlæsning af karnaughkort



Udlæsning af karnaughkort fra eks

DC \ BA	00	01	11	10
00	0	0	1	0
01	0	0	1	0
11	0	0	1	1
10	0	0	1	1

1 2

Sløjfe 1: AB

Sløjfe 2: $\bar{A}BD$

$$X = AB + \bar{A}BD$$



Sløjfe udtryk reduceret



DC \ BA	00	01	11	10
00	0	0	1	0
01	0	0	1	0
11	0	0	1	1
10	0	0	1	1

1 2

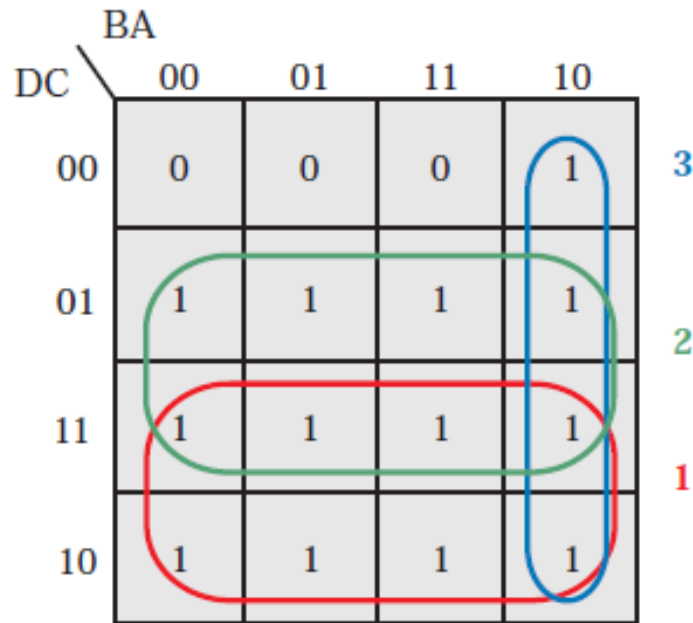
Sløjfe 1: AB

Sløjfe 2: BD

Endeligt udtryk: AB + BD

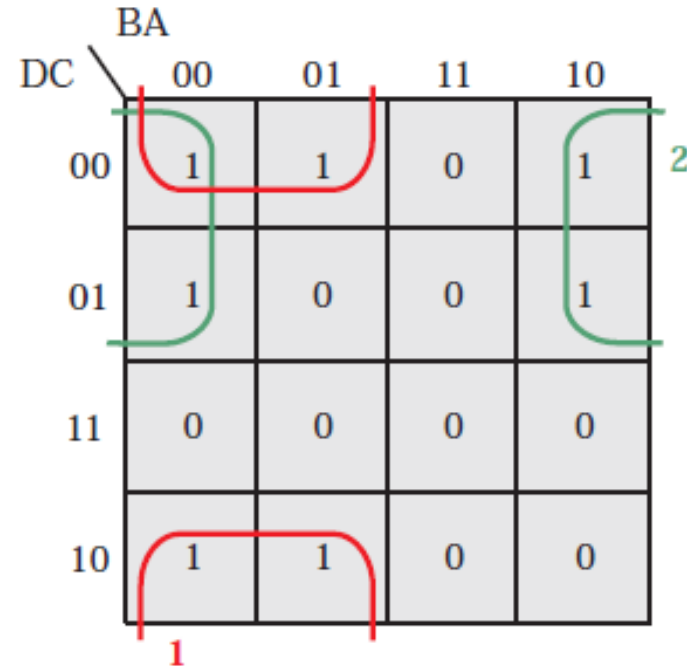


Eks. På Karnaughkort



$1 = D$
 $2 = C$
 $3 = B\bar{A}$
 $X = D + C + B\bar{A}$

Hvilke ringe er 1,2,3?



$1 = \bar{C}\bar{B}$
 $2 = \bar{A}\bar{D}$
 $X = \bar{C}\bar{B} + \bar{A}\bar{D}$

