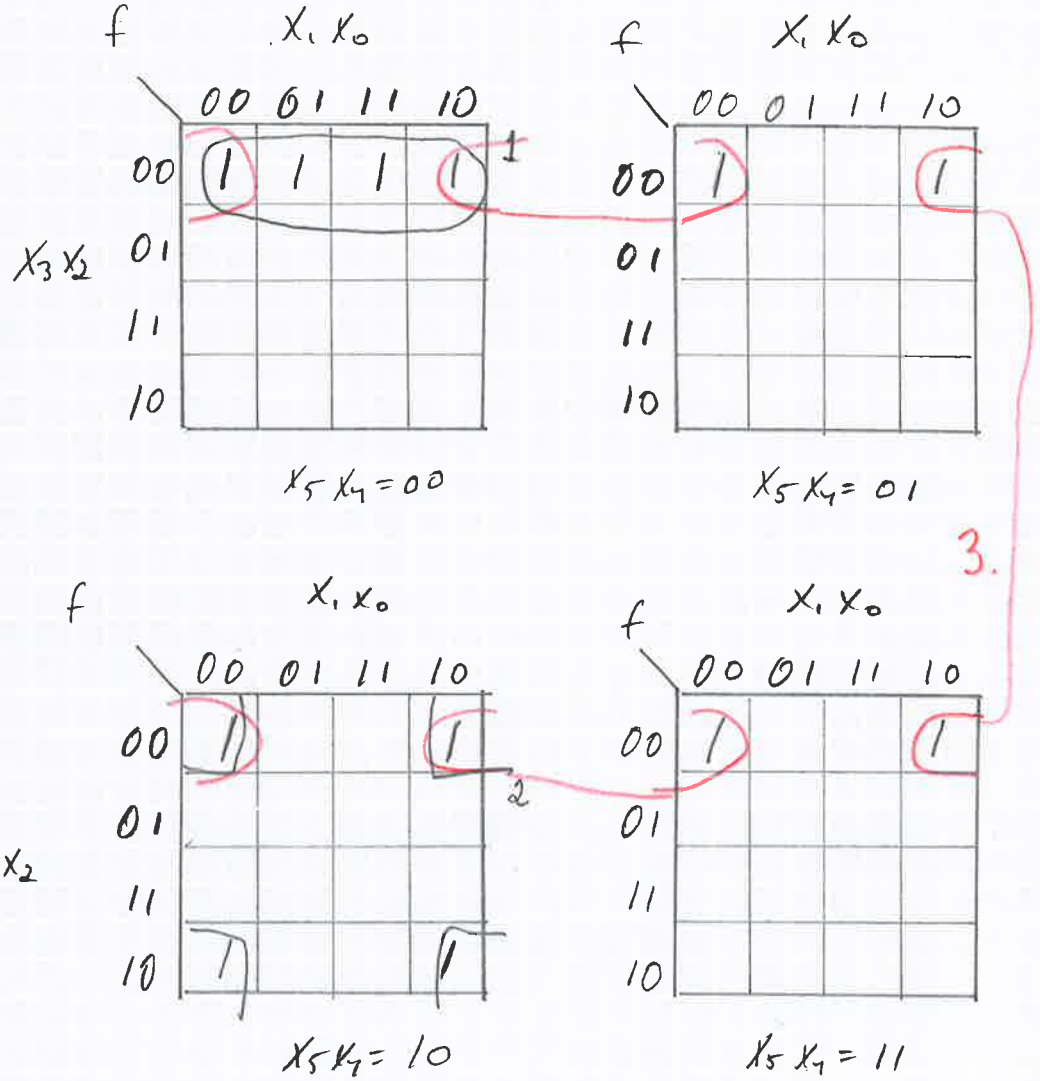
Karnaugh diagram 6-variabler

Ex. Tag fram ett minimalt SP-nät för

$f = \Sigma(0,1,2,3,16,18,32,34,40,42,48,50)$

	32	16	8	4	2	1	
	X_5	X_4	X_3	X_2	X_1	X_0	f
0	0	0	0	0	0	0	1
1	0	0	0	0	0	1	1
2	0	0	0	0	1	0	1
3	0	0	0	0	1	1	1
16	0	1	0	0	0	0	1
18	0	1	0	0	1	0	1
32	1	0	0	0	0	0	1
34	1	0	0	0	1	0	1
40	1	0	1	0	0	0	1
42	1	0	1	0	1	0	1
48	1	1	0	0	0	0	1
50	1	1	0	0	1	0	1



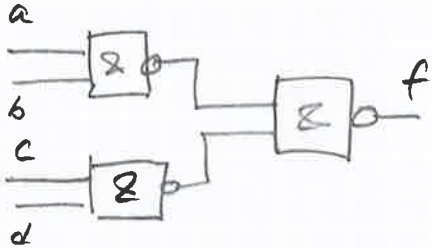
$$f = \overline{X_5} \cdot \overline{X_4} \cdot \overline{X_3} \cdot \overline{X_2} + X_5 \cdot \overline{X_4} \cdot \overline{X_2} \cdot \overline{X_0} + \overline{X_3} \cdot \overline{X_2} \cdot \overline{X_0}$$

NAND - NAND nät sid 139.

Realisera $f = a \cdot b + c \cdot d$ med endast NAND-grindar.

$$a \cdot b + c \cdot d = \left(a \cdot b + c \cdot d\right)'' = \left(\left(a \cdot b\right)' \cdot \left(c \cdot d\right)'\right)'$$

de Morgan



ex. på NAND-nät:

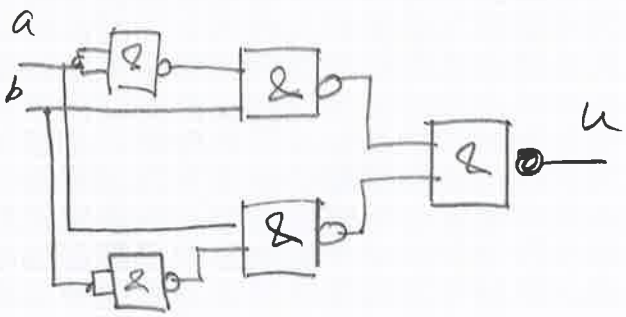
Realisera en XOR-grind med enbart 2-ingångars NAND grindar (7400)

XOR-grindens sanningstabell:

a	b	u
0	0	0
0	1	1
1	0	1
1	1	**0**

d.v.s. $u = \bar{a} \cdot b + a \cdot \bar{b}$

$u = \overline{\bar{a} \cdot b + a \cdot \bar{b}} = \overline{\overline{\bar{a} \cdot b} \cdot \overline{a \cdot \bar{b}}}$



anm: inversfunktion realiseras med 

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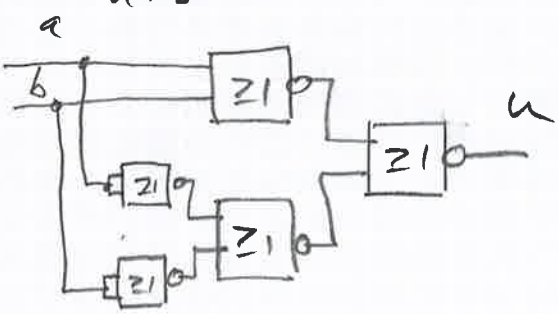
ex. på NOR-nät

Realisera en XOR-grind med enbart 2-ingångars NOR-grindar (7402)

tas fram villkoren för $u = 0$ (i tabellen ovan)

$\bar{u} = \bar{a} \cdot \bar{b} + a \cdot b \Rightarrow u = \overline{\bar{a} \cdot \bar{b} + a \cdot b} = \overline{\bar{a} \cdot \bar{b}} \cdot \overline{a \cdot b} = (a + b)(\bar{a} + \bar{b})$

$\overline{a \cdot b} = \bar{a} + \bar{b}$



anm: invers funktion realiseras med