

Oppg 1

a)  $1013$

1	3
6	
3	
1	
0	

$011$

$$13_{10} = 1101_2$$

256 128 64 32 16 8 4 2 1

b)

2	8	9
1	4	4
7	2	
3	6	
1	8	
9		
4		
2		
1		
0		

$100100001$

$$289_{10} = 100100001_2$$

c)  $-27$

2	7
1	3
6	
3	
1	
0	

$100101$

$32 16 8 4 2 1$

$$27 = 11011$$

$$00101$$

$100101$

$-32 \quad 4 \quad 1$

$$-32 + 4 \times 1 = -27$$

$$\underline{\underline{-27 = 100101}}$$

Oppg 2

a)  $100101$

$32 \quad 4 \quad 1$

$$\underline{\underline{37.0}}$$

b)  $110111011$

$512 \quad 256 \quad 64 \quad 32 \quad 16 \quad 8 \quad 2 \quad 1$

$$\underline{\underline{891_{10}}}$$

Q4/3

a) 11000110

-128 64 4 2

-128 + 64 + 4 + 2

-64 + 4 + 2

-58<sub>10</sub>

b) 101011001

-256 64 16 8 1

-256 + 64 + 16 + 8 + 1

-192 + 16 + 8 + 1

-176 + 8 + 1

-168 + 1

-167<sub>10</sub>

Q4/4)

000101100100

+0111101000111

01001000010001

Q4/6

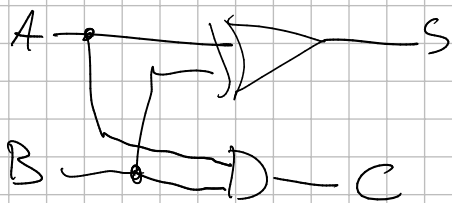
a	b	c	d
0	0	0	0
0	1	0	1
1	0	0	1
1	1	1	0

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a	b	c	s
0	0	0	0
0	1	0	1
1	0	0	1
1	1	1	0

$$(\bar{a}b) + (a\bar{b}) = s$$

$$ab = c$$

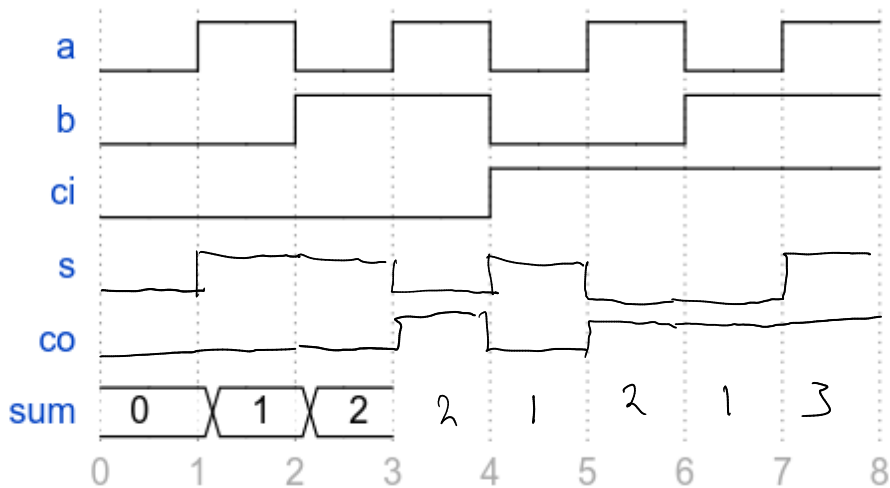


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a	b	c	s
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

13

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a	b	c <sub>i</sub>	c <sub>0</sub>	s
0	0	0	0	0
0	0	1	0	1
0	1	0	0	1
0	1	1	0	0
1	0	0	0	1
1	0	1	1	0
1	1	0	1	0
1	1	1	1	1

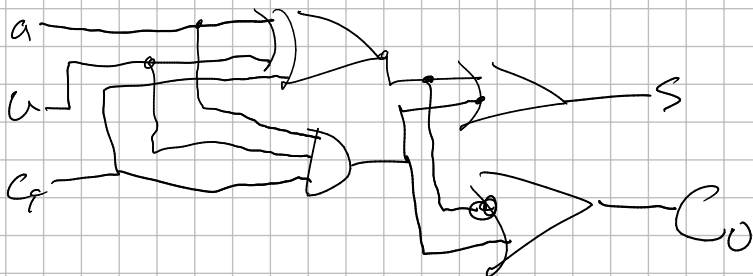
$$s = \bar{a}\bar{b}c_i + \bar{a}b\bar{c}_i + a\bar{b}c_i + ab\bar{c}_i$$

$$c_0 = \bar{a}b\bar{c}_i + a\bar{b}c_i + a b \bar{c}_i + a b c_i$$

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$$s = \bar{a}\bar{b}c_i + \bar{a}b\bar{c}_i + a\bar{b}c_i + ab\bar{c}_i \quad \text{XOR} + \text{AND}$$

$$c_0 = \bar{a}b\bar{c}_i + a\bar{b}c_i + a b \bar{c}_i + a b c_i \quad \text{NAND} + \text{AND}$$



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