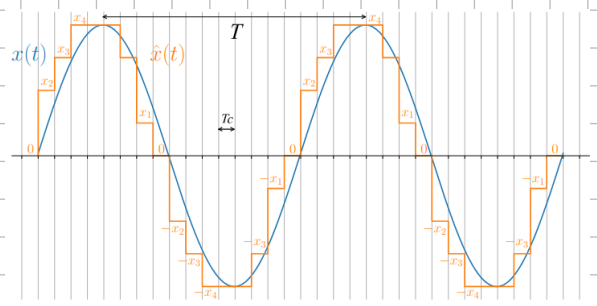
ETC 23

Oppg 1)



$$x_n = V_0 \sin\left(2\pi \cdot \frac{n}{16}\right)$$

$$= V_0 \sin\left(\frac{\pi n}{8}\right)$$

Oppg 2)

$$B = -b_7 2^7 + \sum_{i=0}^{6} b_i \cdot 2^i$$

$B_{min} = 1000\,0000_2$

$$= -1 \cdot 2^7 + 0 = -128$$

$B_{max} = 0111\,1111_2$

$$= 0 \cdot 2^7 + \sum_{i=0}^{6} 1 \cdot 2^i$$

$$= 0 + 1 + 2 + 4 + 8 + 16 + 32 + 64$$

$$= 127$$

Oppg 3) $\hat{x} = B\Delta V$

$\hat{x}_{min} = -128 \cdot \Delta V = -5V$

$\Delta V = \frac{5}{128} = 3{,}91 \cdot 10^{-2} V$

$\hat{x}_{max} = 127 \cdot 3{,}91 \cdot 10^{-2} = 4{,}97$

Oppg 7b) $x_1 = V_0 \sin\frac{\pi}{8}$

$$(5 - 4{,}921) \cdot \sin\frac{\pi}{8} = 0{,}01$$

$$x_1 = V_0 \sin\frac{\pi}{8}$$

$$\hat{x} = B\,\Delta V$$

$$V_0 \sin\frac{\pi}{8} = B\,\Delta V$$

$$B = \frac{V_0}{\Delta V}\sin\frac{\pi}{8}$$

$$B = 48{,}64 \simeq 49$$

$$B = 00110001_2$$

Oppg 8)

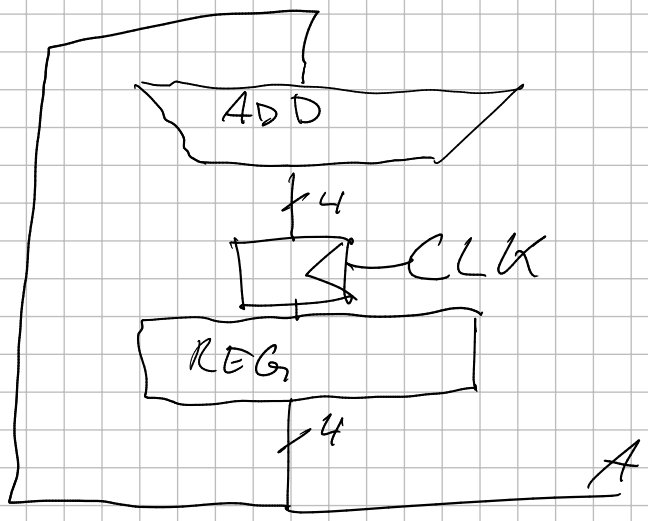
$A = a_3 a_2 a_1 a_0$

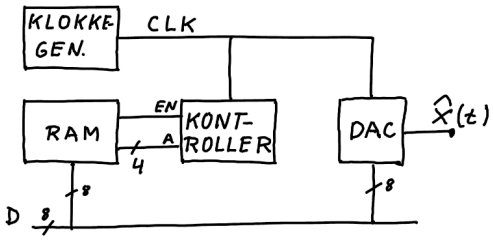
$A = 0$ til 15

$A_0 = 0000$

$A_{15} = 1111$

Oppg 9) Koblestall





Вар 10

A_0	A_2	B	χ_4
0	0000	00000000	0
1	0001	00110001	x_1
2	0010	01011011	x_2
3	0011	01110110	x_3
4	0100	01111111	x_4
5	0101	01110110	x_3
6	0110	00110001	x_2
7	0111	00110001	x_1
8	1000	00000000	0
9	1001	11001111	$-x_1$
10	1010	10100101	$\sim x_2$
11	1011	10001010	$-x_3$
12	1100	10000000	$-x_4$
13	1101	10001010	$-x_3$
14	1110	10100101	$-x_2$
15	1111	11001111	$-x_1$

Вар (1)