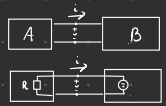
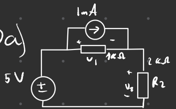
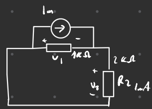
①

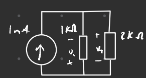


②a)



Superposisjon:
$V=0$





$R_{tot} = \frac{1\cdot 2}{1+2} = 667\,\Omega$

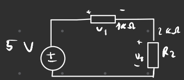
$V = 667\,\Omega \cdot 1mA = 0{,}667V$

$V_{1_I} = -0{,}667V$

$V_{2_I} = 0{,}667V$

$V_1 = 1{,}67 - 0{,}67 = \underline{1V}$

$V_2 = 3{,}33 + 0{,}67 = \underline{4V}$ $\quad I = 0$



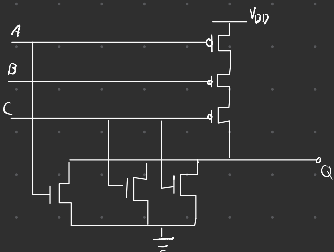
$I = \frac{5V}{3000\Omega} = 1{,}67mA$

$V_{1_V} = 1{,}67mA \cdot 1000\Omega = 1{,}67V$

$V_{2_V} = 1{,}67mA \cdot 2000\Omega = 3{,}34V$

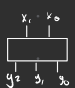
b) Strøm og spenningskildene gir
Motstand mottar strøm

③



A	B	C	Q
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

④ a)



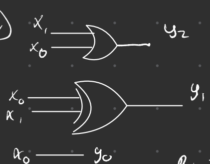
x_1	x_0	y_2	y_1	y_0
0	0	0	0	0
0	1	1	1	1
1	0	1	1	0
1	1	1	0	1

b) $y_2 = \overline{\bar{x}_1 \bar{x}_0} = \bar{\bar{x}}_1 + \bar{\bar{x}}_0 = x_1 + x_0$

$y_1 = \bar{x}_1 x_0 + x_1 \bar{x}_0 = (x_1 \oplus x_0)$

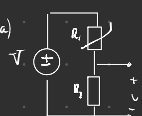
$y_0 = \bar{x}_1 x_0 + x_1 x_0 = x_0$

c)



$R_1 = R_0 - aT$

⑤a)



$v = V \cdot \frac{R_2}{R_1 + R_2}$

$v = V \cdot \frac{R_2}{R_0 - aT + R_2}$

b) øke

c) $T = 25°C$

$R_1 = R_0 - at = 20k\Omega - 400 \cdot 25 = 10k\Omega$

$I = \frac{v}{R_1 + R_2} = \frac{9V}{10k\Omega + 10k\Omega} = 0{,}45mA$

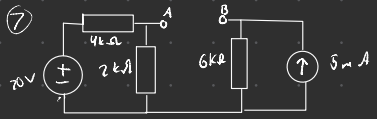
Kapasitet $= 500mAh \Rightarrow \frac{500mAH}{0{,}45mA} = \underline{1111 \text{ time}}$

⑥

$I = \frac{5}{9\Omega} = 0{,}55$

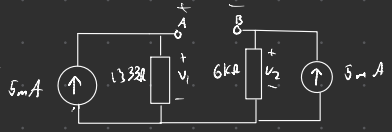
$P = I^2 \cdot R = 0{,}55^2 \cdot 8\Omega = \underline{2{,}42W}$

⑦



$I = \frac{20V}{4000\Omega} = 5mA$

$R_{tot} = \frac{2000 \cdot 4000}{2000+4000} = 1333\Omega$

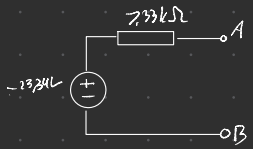


$V_1 = 5mA \cdot 1333\ \Omega = 6{,}665V$

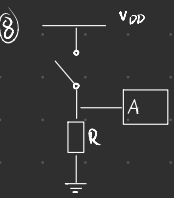
$V_2 = 5mA \cdot 6000\ \Omega = 30V$

$R_{Ther} = 6k\Omega + 1{,}33k\Omega = 7{,}33k\Omega$

$V_{Ter} = 6{,}665 - 30V = -23{,}34V$



⑧



$R = 0 \rightarrow$ uendelig strøm i jord

$R = \infty \rightarrow$ Alltid 1

$R = 1\ \Omega \rightarrow$ Bra, men mye strøm i jord

$R = 1k\Omega \rightarrow$ Bra