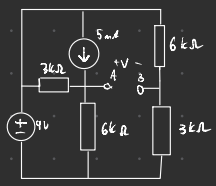
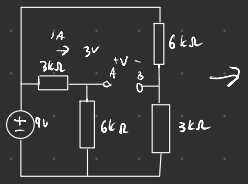
1) a)



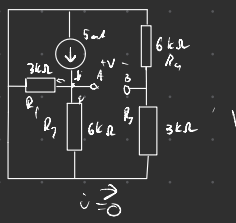
Superposisjon:



$I = \frac{9V}{4500\Omega} = 2mA$

$V_A = 9 - 3 = 6V$

$V_B = 9 - 6 = 3V$



$i_{R_2} = 5mA \cdot \frac{3}{3+6} = 1,66mA$

$V_A = 1,66mA \cdot 6000\Omega = 9,96V$

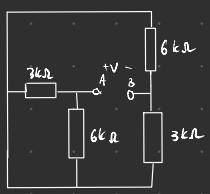
$V_B = 0$

$i = 0$

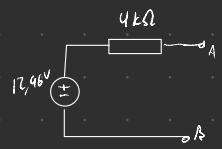
$V_A = 6V + 9,96V = 15,96V$

$V_{AB} = 15,96V - 3V = 12,96V$

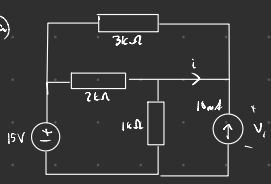
b)



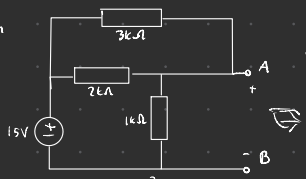
$2 \cdot \frac{3 \cdot 6}{3+6} = 4k\Omega$

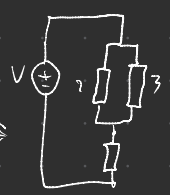


2) a)



Superposisjon

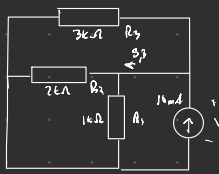




$R_p = \frac{(2 \cdot 3)k\Omega^2}{(2+3)k\Omega} = 1200\Omega$

$I = \frac{15V}{2000\Omega} = 6,8mA$

$V_A = 6,8mA \cdot 1000\Omega = 6,8V$



$I = 10mA \cdot \frac{3000}{3600}$

$I = 8,3mA$

$I_{R_1} = 8,3mA \cdot \frac{2000}{3000} = 5,53mA$

$V_{R_1} = 5,53mA \cdot 1000\Omega = 5,53V$

$V_{AB} = 5,53V + 6,8V = 12,3V$

b) $i_2 = -8,3mA$

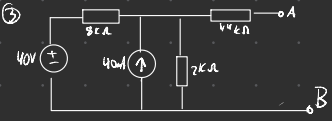
I

$i_V = 6,8mA \cdot \frac{2000\Omega}{5000\Omega} = 2,72mA$

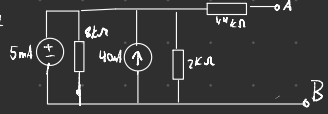
$i_{tot} = (2,72 - 8,3)mA = -11mA$

c)

③



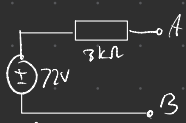
$I = \frac{40V}{8000\Omega} = 5mA$

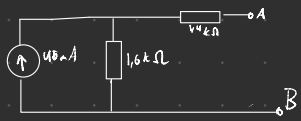


$U = 45mA \cdot 1,6k\Omega$

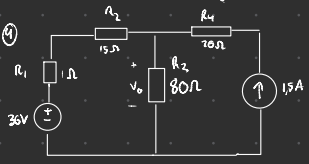
$U = 72V$

$R_{tot} = 1,6k\Omega + 1,4k\Omega = 3k\Omega$

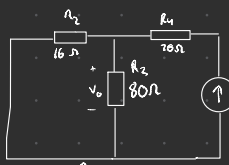




④

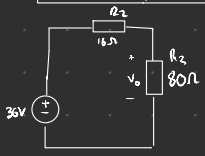


Superposisjon:



$I_{R_2} = 1,5 \cdot \frac{16}{16+80} = 0,25A$

$U_{R_2} = 0,25A \cdot 80\Omega = 20V$



$I = \frac{36V}{96\Omega} = 0,375A$

$U_{R_3} = 0,375A \cdot 80\Omega = 30V$

$V_0 = 30V + 20V = 50V$

b)