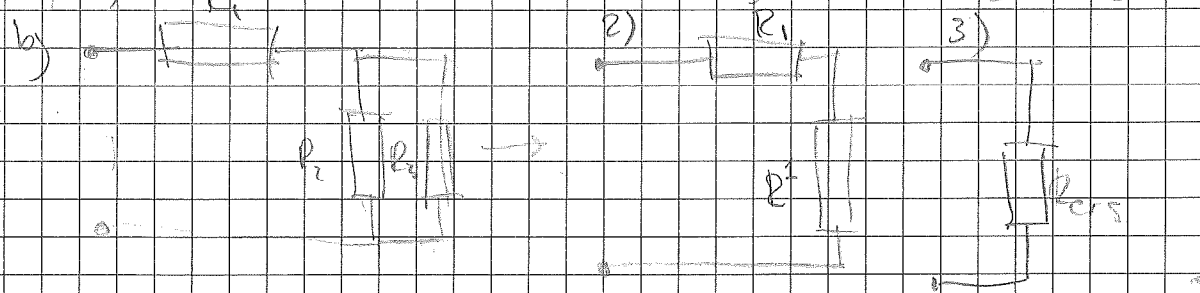
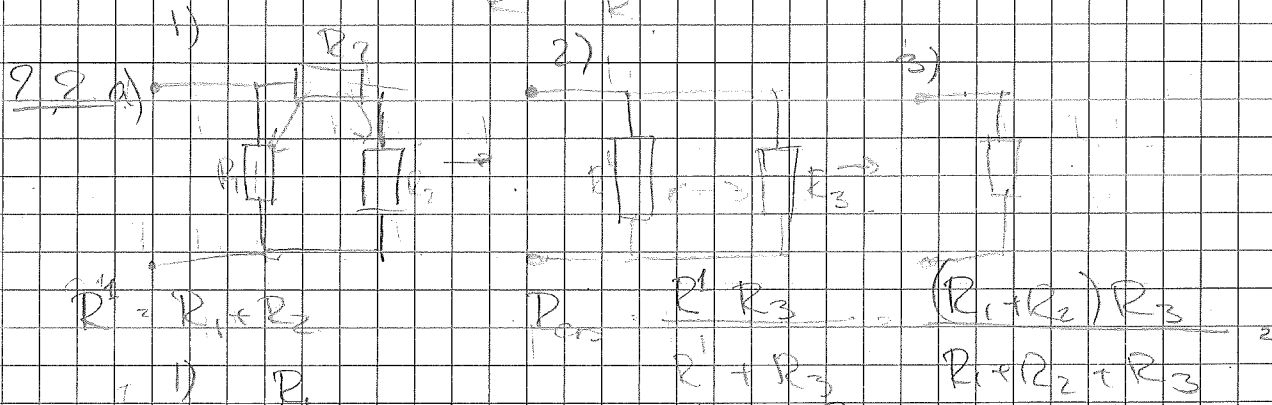


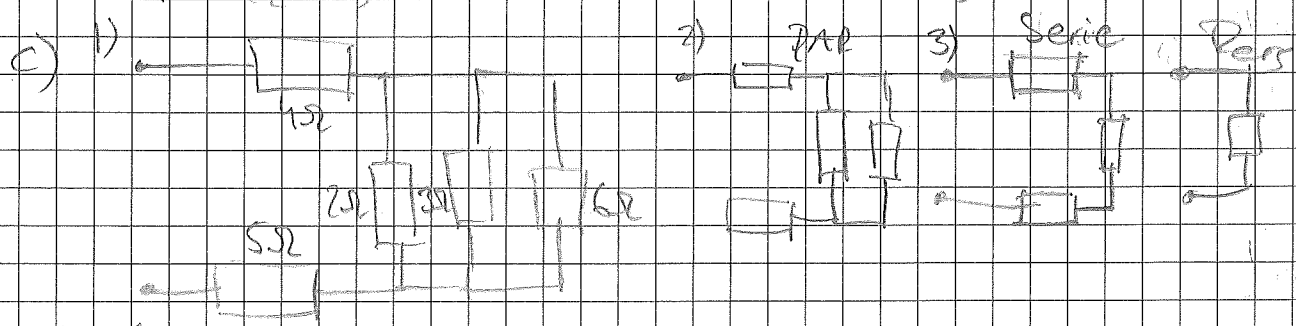
1.16. Potential i nod 1 = 0.  
 Nod 3:  $5 - (-3) = 8V$

1.17 
$$\begin{cases} i_1 = 5 \text{ mA} \\ i_2 = 15 \text{ mA} \\ i_3 = -9 \text{ mA} \\ i_5 = 0 \text{ mA} \end{cases} \quad \begin{aligned} i_1 + i_2 + i_3 + i_4 + i_5 &= 0 \\ \Rightarrow i_4 &= -i_1 - i_2 - i_3 - i_5 = \\ &= -5 - 15 + 9 - 0 = -7 \text{ mA} \end{aligned}$$

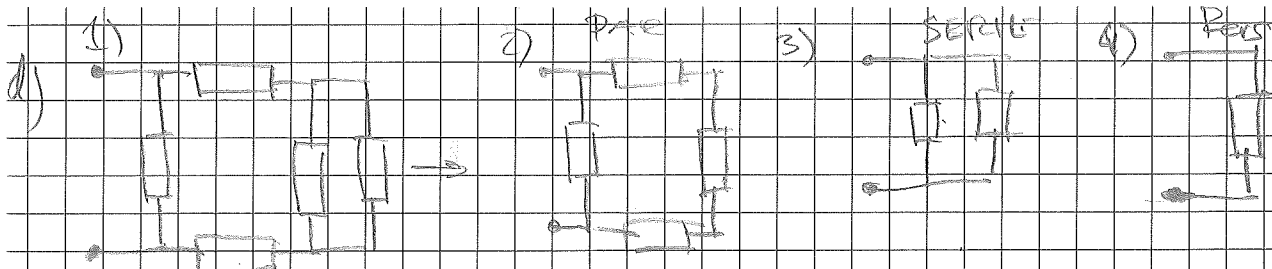
1.18.  $P = V_0 \cdot i \Rightarrow R = \frac{V}{i} \Rightarrow i = \frac{V}{R}$   
 $\Rightarrow P = V_0 \cdot \frac{V_0}{R} = \frac{V_0^2}{R}$



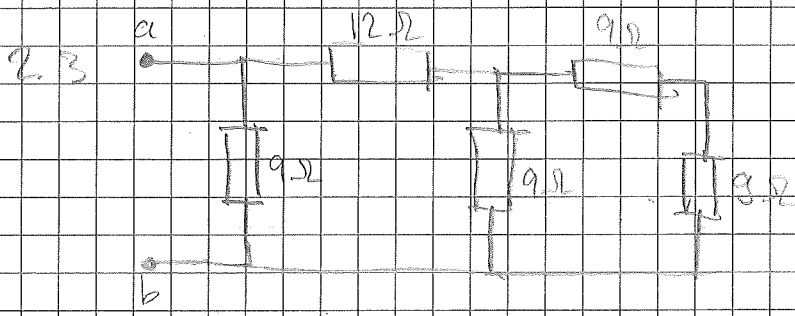
$R^1 = \frac{R_2 R_3}{R_2 + R_3}$        $R_{ens} = R_1 + \frac{R_2 R_3}{R_2 + R_3}$



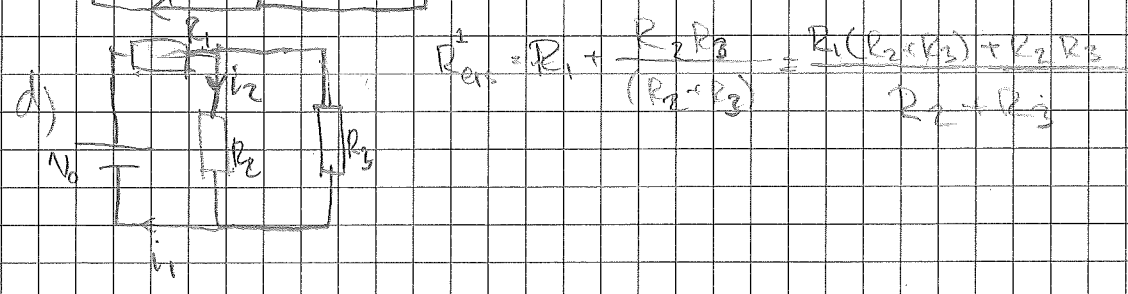
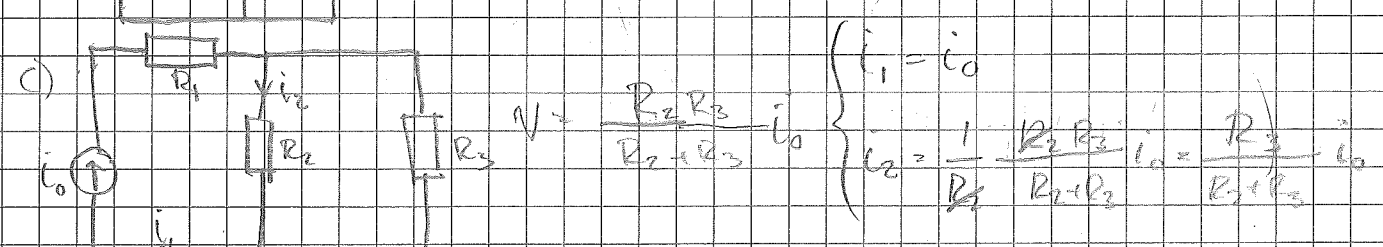
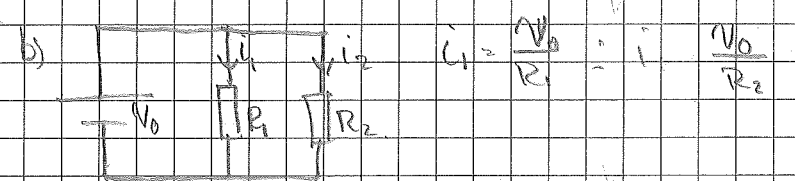
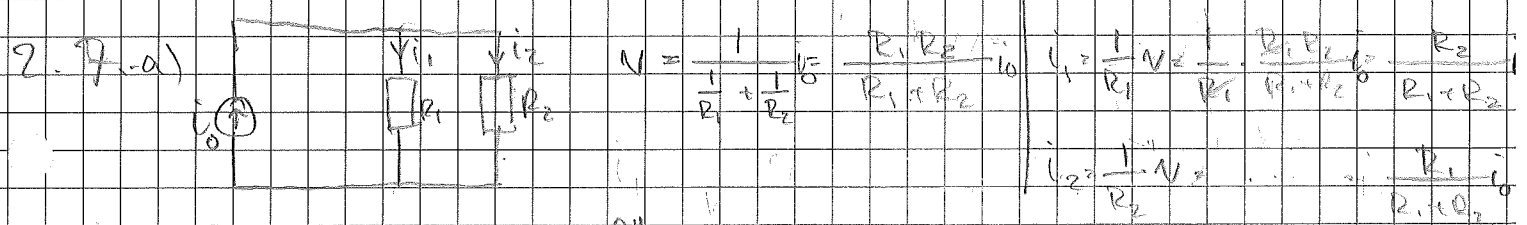
1)  $R^1 = \frac{6 \cdot 3}{6 + 3} = \frac{18}{9} = 2 \Omega$   
 2)  $R = \frac{2 \cdot 2}{2 + 2} = 1 \Omega$   
 3)  $R_{ens} = 4 \Omega + 5 \Omega + 1 \Omega = 10 \Omega$   
 4)  $R_{ens} = 4 \Omega + 5 \Omega + 1 \Omega = 10 \Omega$



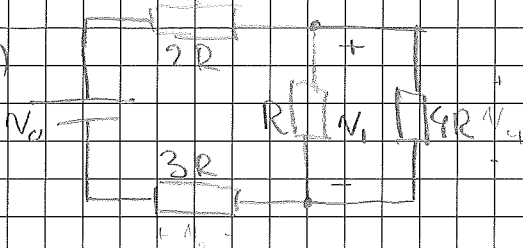
1)  $R^e = \frac{1 \cdot 5}{1+5} = 1 \Omega$   
 2)  $R^e = 1 \Omega + 2 \Omega + 3 \Omega = 5 \Omega$   
 3)  $R_{\text{Pars}} = \frac{4 \cdot 8}{4+8} = \frac{32}{12} = \frac{8}{3} \Omega$



1)  $9+9=18 \Omega$   
 2)  $\frac{9 \cdot 18}{9+18} = 6 \Omega$   
 3)  $12+6=18 \Omega$   
 4)  $\frac{9 \cdot 18}{9+18} = 6 \Omega = R$



2.8a)

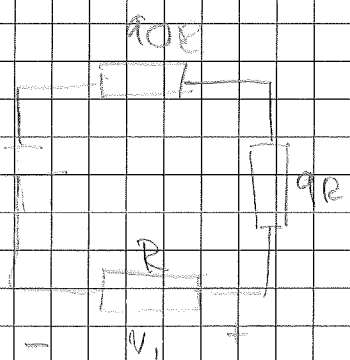


$$R_{\text{ges}} = 2R + \frac{3R \cdot R}{3R + R} + 9R = 3R = \frac{18R}{5} + 2R + 3R = \frac{29R}{5}$$

$$i = \frac{5V_0}{29R}$$

$$V_1 = R \cdot \frac{5V_0}{29R} = \frac{5}{29} V_0$$

b)

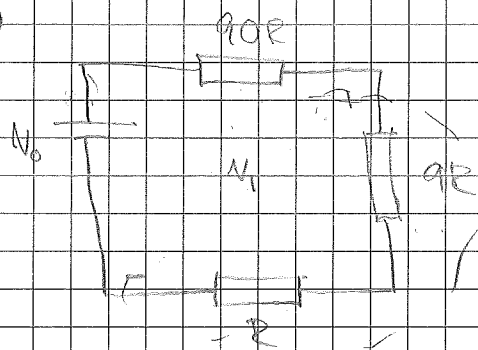


$$R_{\text{ges}} = (90 + 9) + 1R = 100R$$

$$i = \frac{V_0}{100R}$$

$$V_1 = R \cdot \frac{V_0}{100R} = \frac{V_0}{100}$$

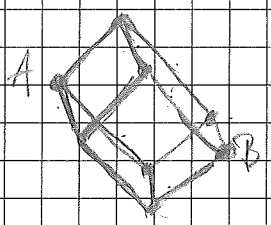
c)



$$R_{\text{ges}} = 100R \Rightarrow i = \frac{V_0}{100R}$$

$$V_1 = (9+1)R \cdot \frac{V_0}{100R} = \frac{V_0}{10}$$

8.11



$$R_{AB} = \frac{V_{AB}}{i_A}$$

$$i_A = i_0$$

$$R_{\text{ges}} = \frac{12}{12}$$

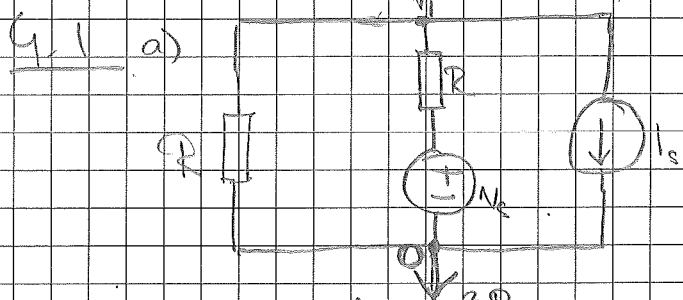
2.15  $R_1 = 70 \Omega$   
 $I_1 = 1 \cdot 10^{-3} \text{ A}$   
 $I_2 = 200 \cdot 10^{-3} \text{ A}$   
 $U_0 = R_1 \cdot I_1$

$R_{\text{rev}} = \frac{R_1 R_2}{R_1 + R_2}$   $U_0 = R_{\text{rev}} \cdot I_2 = \frac{R_1 R_2}{R_1 + R_2} I_2 \Rightarrow$   
 $\frac{U_0}{I_2} = R_{\text{rev}} \quad U_0 = 70 \cdot 1 \cdot 10^{-3} \cdot 200 \cdot 10^{-3} = 14 \cdot 10^{-3} \text{ V}$

$\frac{R_1 R_2}{R_1 + R_2} = 0,35 \Rightarrow R_1 R_2 = 0,35 R_1 + 0,35 R_2$

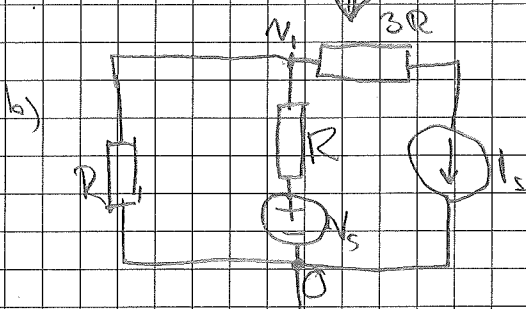
$R_2 (R_1 - 0,35 R_2) = 70 \cdot 0,35 R_2$

$R_2 = \frac{0,35^2 \cdot 70}{70 - 0,35^2} = 0,385 \Omega$

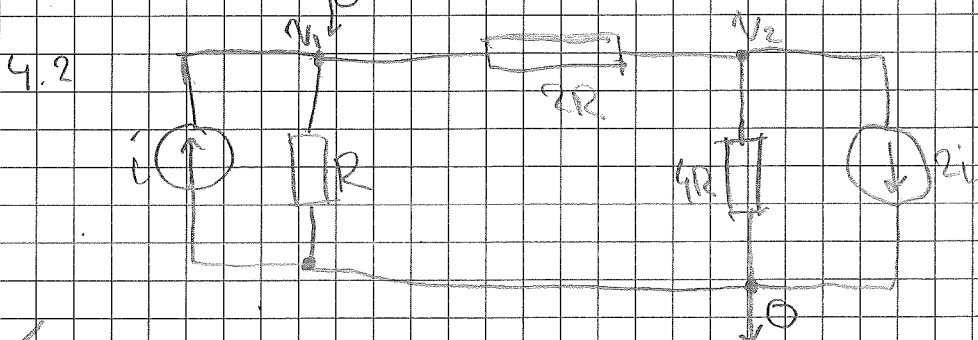


1)  $\frac{V_1 - V_s}{R} + I_s + \frac{V_1 - 0}{R} = 0$

$V_1 - V_s + V_1 = -I_s R$   
 $2V_1 = \frac{V_s - I_s R}{2}$



1) Same



1)  $\frac{V_1}{R} - i + \frac{V_1 - V_2}{2R} = 0$

$3V_1 - 2Ri + V_1 - V_2 = 0$

$2V_2 = 2V_1 + V_2 + 8Ri = 0$

$3V_1 - V_2 = 2R \cdot i$

$-2V_1 + 3V_2 = -8R \cdot i$

$\begin{cases} 3V_1 - V_2 = 2R \cdot i \\ 9V_1 - V_2 = -2R \cdot i \end{cases} \Rightarrow \begin{cases} -6R \cdot i \\ 7 \end{cases} \Rightarrow \begin{cases} V_1 = -\frac{20R \cdot i}{7} \\ V_2 = \frac{90R \cdot i}{7} \end{cases}$