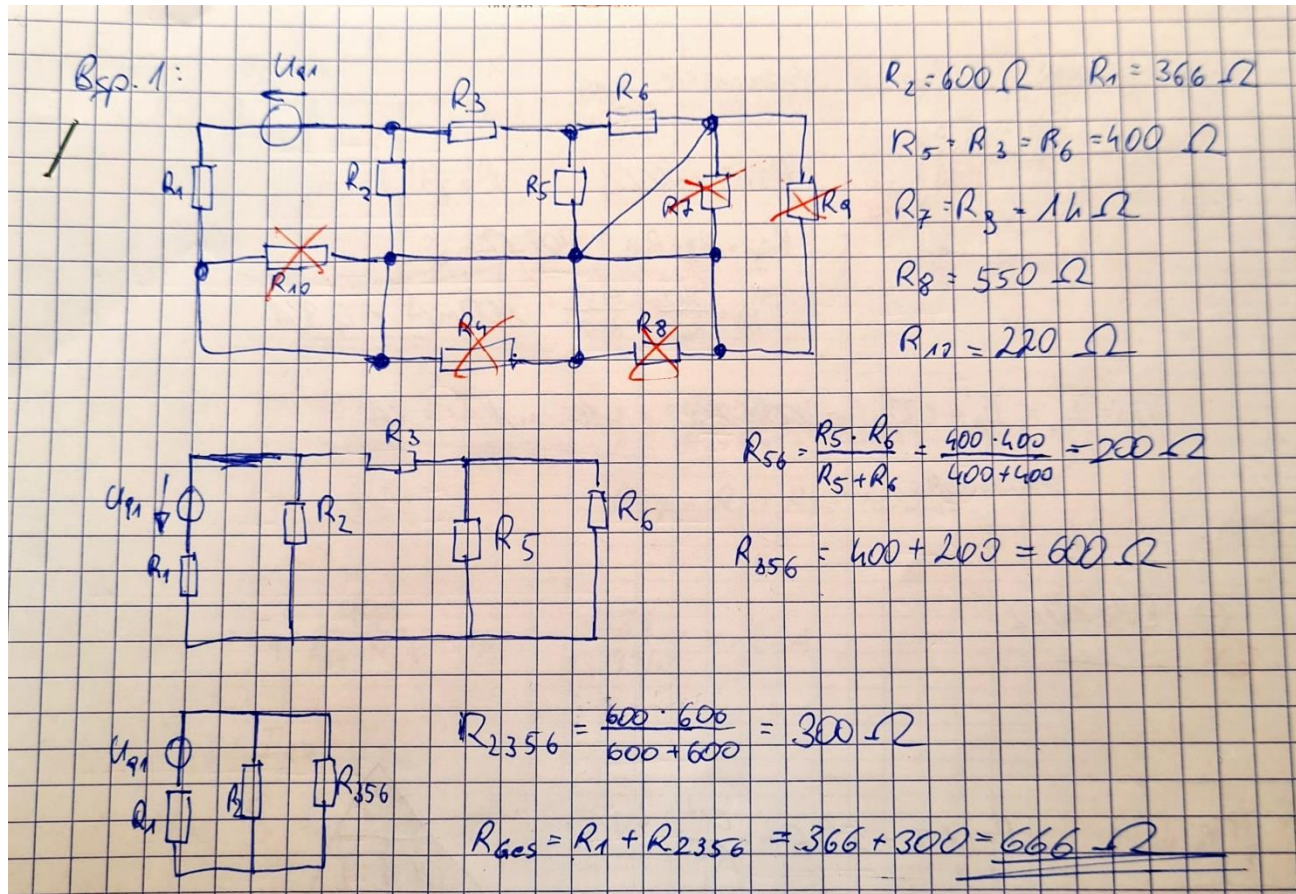




Keine Angabe für diese Beispiele dabei!



Bsp. 2:

$$I_{q1} = 300 \text{ mA}$$

$$U_{q1} = 90 \text{ V}$$

$$R_1 = 200 \Omega$$

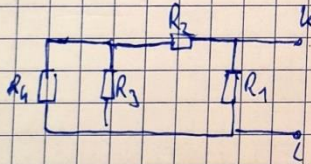
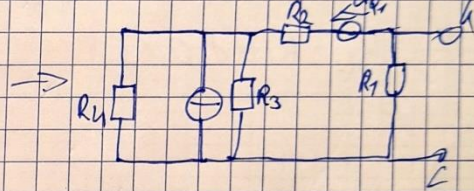
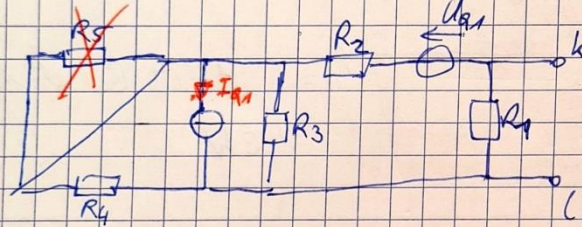
$$R_2 = 100 \Omega$$

$$R_3 = 400 \Omega$$

$$R_4 = 400 \Omega$$

$$R_5 = 200 \Omega$$

a) Äquivalente Ersatzstromquelle

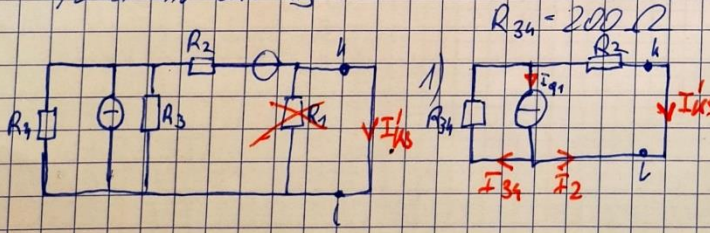


$$R_{34} = \frac{R_3 \cdot R_4}{R_3 + R_4} = 200 \Omega$$

$$R_{234} = R_2 + R_{34} = 300 \Omega$$

$$R_i = \frac{R_1 \cdot R_{234}}{R_1 + R_{234}} = \frac{200 \cdot 300}{200 + 300} = 120 \Omega$$

b) Last und Leistung (ONP):

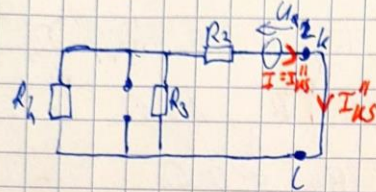


$$I_2 = I_{q1} \cdot \frac{R_{34}}{R_2 + R_{34}} = 300 \cdot \frac{200}{300} = 200 \text{ mA}$$

$$I'_{k5} = -I_2 = -200 \text{ mA}$$

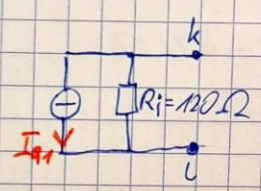
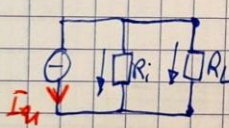
Fortsetzung vom Bsp.2:

Spannungsquelle aktiv & Stromquelle aus



$R_{34} = 200 \Omega$
 $R_{ges} = R_2 + R_{34} = 300 \Omega$
 $I''_{KS} = \frac{U_{q2}}{R_{ges}} = \frac{90}{300} = 300 \text{ mA} = 0,3 \text{ A}$

$I_{KS} = I_{Eg} = I'_{KS} + I''_{KS} = -200 + 300 = 100 \text{ mA} = 0,1 \text{ A}$
 ↳ Ersatzquelle

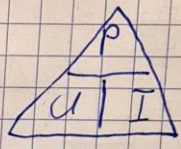
$P = U \cdot I = I^2 \cdot R = \frac{U^2}{R}$
 $U = R \cdot I$

$\left(\begin{array}{l} U \gg \Rightarrow I \ll \Rightarrow P \ll \\ I \gg \Rightarrow U \ll \Rightarrow P \ll \end{array} \right)$
 $(U_{Mittel} \cdot I_{Mittel} =)$

$I_L = I_q \cdot \frac{R_i}{R_i + R_L}$
 $I_L = 50 \text{ mA}$

$R_L = R_i = 120 \Omega$

$P_L = I_L \cdot U_L = I_L^2 \cdot R_L = 50^2 \cdot 120 = 0,3 \text{ W}$



Bsp.3:

a) $U_6 = ?$ b) $P_6 = ?$

$R_1 = 15 \Omega$
 $I_q = 40 \text{ A}$
 $R_2 = 80 \Omega$
 $R_3 = R_5 = R_6 = R_7 = 20 \Omega$
 $R_8 = 40 \Omega$
 $R_4 = 10 \Omega$

$R_{39} = \frac{R_3 \cdot R_9}{R_3 + R_9} = 13,33 \Omega$
 $R_{67} = R_6 + R_7 = 40 \Omega$

$$I_{67} = I_q \cdot \frac{R_{39}}{R_{39} + R_{67}} = 40 \text{ A} \cdot \frac{13,33}{13,33 + 40} = 10 \text{ A}$$

$$I_{67} = I_{R7} = I_{R6}$$

$$U_6 = R_6 \cdot I_{67} = 20 \cdot 10 = \underline{\underline{200 \text{ V}}}$$

b) $P_6 = U_6 \cdot I_6 = 200 \cdot 10 = \underline{\underline{2 \text{ kW}}}$
 $= I_6^2 \cdot R_6 = 10^2 \cdot 20 = \underline{\underline{2 \text{ kW}}}$
 $\frac{U_6^2}{R_6} = \frac{(200)^2}{20} = \underline{\underline{2 \text{ kW}}}$