

$$R_{Th} = R_{ab} = R_{Th} = \frac{1}{\frac{1}{2} + \frac{1}{3} + \frac{1}{6}} = 1 \Omega$$

Umgangsspannung: $V_{Th} = V_{ab}$

$$\frac{V_{ab} - 0}{2} + \frac{V_{ab} - 0}{3} - 3 + \frac{V_{ab} - 0}{6} = 0$$

$$\Rightarrow 3V_{ab} - 12 + 2V_{ab} - 18 + V_{ab} = 0$$

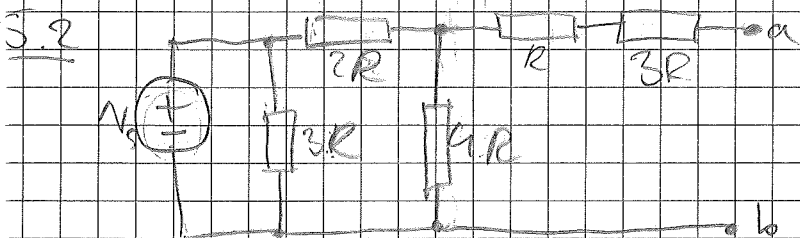
$$\Rightarrow 6V_{ab} = 30V$$

$$\Rightarrow V_{ab} = V_{Th} = 5V$$

Kurzschlussstrom:

$$I_{sc} = \frac{V_{Th}}{R_{Th}} = \frac{5}{1} = 5A$$

SVAR: $V_{Th} = 5V$; $I_{sc} = 5A$



$$R_{ab} = R_{Th} = 3R + R + \frac{2 \cdot 4}{2+4} = 4R + \frac{4}{3}R = \frac{16}{3}R$$

$$V_{Th} = V_s \frac{4}{2+4} = \frac{2}{3}V_s$$

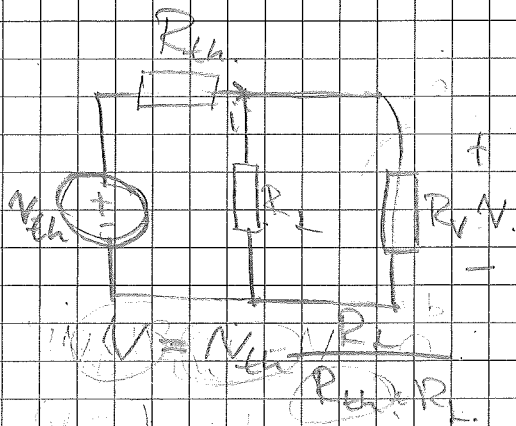
1) $4R$

2) $8R$

3) $\frac{3 \cdot 8}{3+8} = \frac{24}{11}$

4) $\frac{24}{11} + 2$

S.9 DVM: ure res: 10 MΩ
Spanning: 1,92 V



$U_{\text{tan}} = 1,42 \text{ V}$
 $1 \text{ M}\Omega = 1,52 \text{ V}$
 $1 \text{ k}\Omega = 1,35 \text{ V}$

$$\begin{cases} R_{\text{th}} = \frac{1 \cdot 10^6 \cdot U_{\text{th}}}{1,42} = 1,106 \cdot 10^6 \\ P_{\text{th}} = \frac{1 \cdot 10^3 \cdot U_{\text{th}}}{1,35} = 1 \cdot 10^3 \end{cases}$$

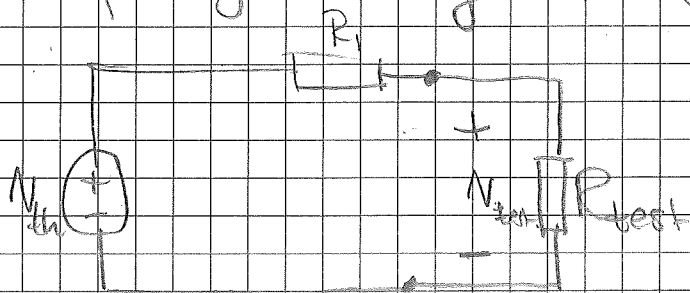
$$\Leftrightarrow \begin{cases} R_{\text{th}} = 704225 \cdot U_{\text{th}} - 1 \cdot 10^6 \\ P_{\text{th}} = 740,74 \cdot U_{\text{th}} - 1 \cdot 10^3 \end{cases}$$

$$\Leftrightarrow \begin{cases} R_{\text{th}} = 704225 \cdot U_{\text{th}} - 10^6 \\ 703484,6114 \cdot U_{\text{th}} = 999000 - 0 \end{cases}$$

$$\Leftrightarrow \begin{cases} R_{\text{th}} = 50,8 \Omega \\ U_{\text{th}} = 1,92 \text{ V} \end{cases}$$

S.9 $U_{\text{tan}} = 1,4 \text{ V} = U_{\text{th}}$

Spannungshalvering: $R_1 = R_{\text{th}} = 17 \Omega$



$$\begin{aligned} U_{\text{test}} &= 1,1 \text{ V} \\ R_{\text{test}} \cdot U_{\text{th}} &= R_1 \cdot U_{\text{test}} + R_{\text{test}} \cdot U_{\text{test}} \\ \Rightarrow R_{\text{test}} &= R_1 \frac{U_{\text{test}}}{U_{\text{th}} - U_{\text{test}}} \\ &= 17 \frac{1,1}{1,9 - 1,1} = 44 \Omega \end{aligned}$$

b) $V = \frac{44}{44 + 1} \cdot 1,5 = 1,5 \text{ V}$