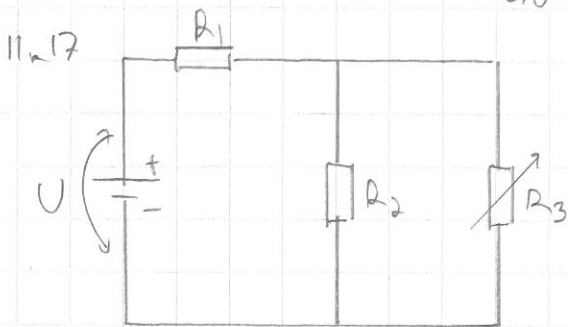


$$U_1 = U_2 = U_3 = R_1 I = 4,75 \cdot 10^3 \Omega \cdot 2,947 \cdot 10^{-3} A \approx 2,2105 V$$

$$I_1 = \frac{U_1}{R_1} = \frac{2,2105 V}{1,0 \cdot 10^3 \Omega} = 2,2105 mA \approx \underline{2,2 mA}$$

$$I_2 = \frac{U_2}{R_2} = \frac{2,2105 V}{3,0 \cdot 10^3 \Omega} \approx \underline{0,74 mA}$$



R_3 : säätöresistori

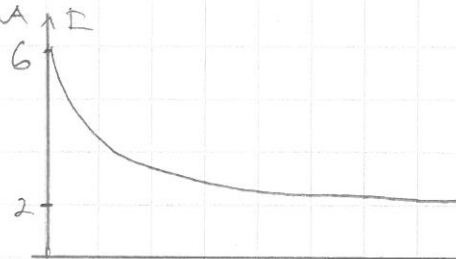
$$U = 12 V$$

mA ↑ I

6

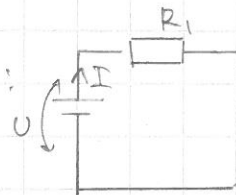
2

→ R_3



1° $R_3 = 0 \Omega$: $I = 6 mA$

Kaikki virta kulkee R_3 :n kautta :

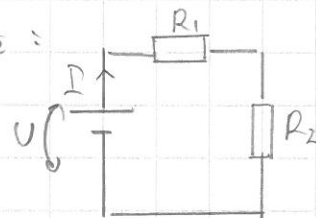


$$K2: \sum \Delta V = 0$$

$$\Rightarrow +U - R_1 I = 0 \quad (\Rightarrow) R_1 = \frac{U}{I} = \frac{12 V}{6 \cdot 10^{-3} A} = 2000 \Omega = \underline{2,0 k\Omega}$$

2° $R_3 = \infty$: $I = 2 mA$

Virta ei kulje yhtään R_3 :n kautta :



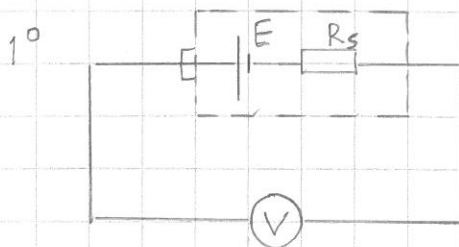
$$K2: \sum \Delta V = 0$$

$$\Rightarrow +U - R_1 I - R_2 I = 0$$

$$\Rightarrow U - R_1 I = R_2 I \quad | : I$$

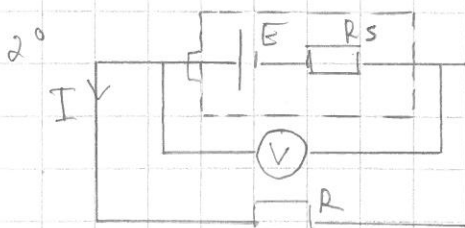
$$\Rightarrow R_2 = \frac{U - R_1 I}{I} = \frac{12 V - 2,0 \cdot 10^3 \Omega \cdot 2 \cdot 10^{-3} A}{2,0 \cdot 10^{-3} A} = 4000 \Omega = \underline{4,0 k\Omega}$$

12. Paristo



Kuormittamaton paristo ($I = 0$)

mittarin lukema: E LAHDEJÄNNITE



Kuormitettu paristo ($I \neq 0$)

Sisäisen resistanssin jännitehäviö: $R_S I$

\Rightarrow pariston napojen realinen jännite: