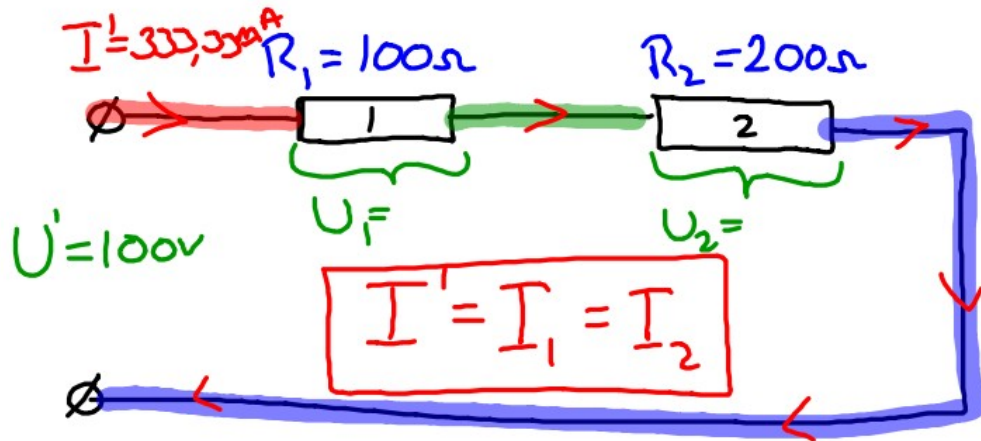


# SERIE KREDSLØB

(SERIE FORBINDELSE)



## KIRCHHOFF'S 2. LOV

"SUMMEN AF SPÆNDINGSFALD ER LIGE MED DEN PÅTRYKTE SPÆNDING"

$$\text{DEN SAMLEDE } U = U' = U_{\text{TOT}} = \sum U$$

$$R' = R_1 + R_2 \Rightarrow 100 + 200 = \underline{\underline{300\Omega}}$$

$$I' = \frac{U'}{R'} = \frac{100}{300} = 0,333 \sim \underline{\underline{333,33mA}}$$

$$U_1 = I_1 \times R_1 \Rightarrow 0,33333 \times 100 = \underline{\underline{33,33V}}$$

$$U_2 = I_2 \times R_2 \Rightarrow 0,33333 \times 200 = \underline{\underline{66,67V}}$$

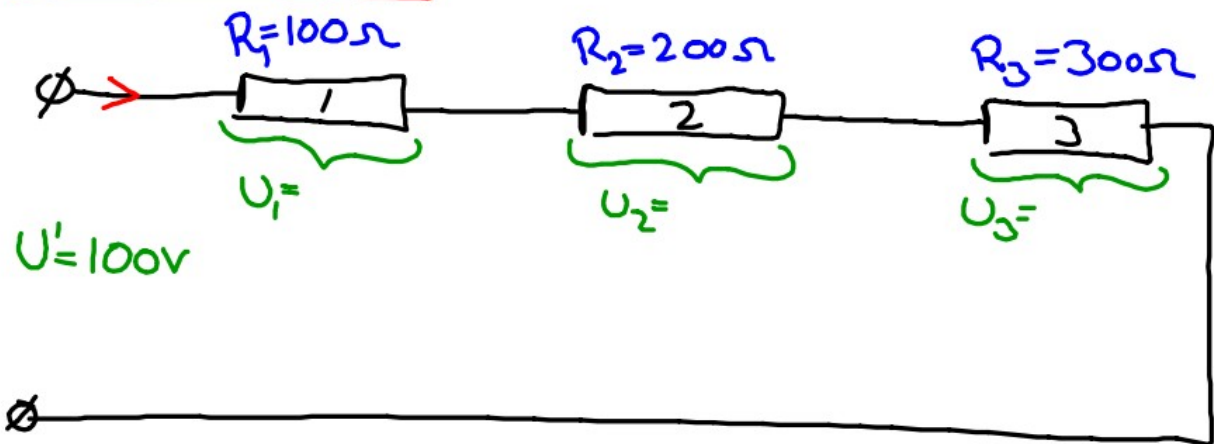
ELLER

$$U_2 = U' - U_1 \Rightarrow 100 - 33,33 = \underline{\underline{66,67V}}$$

R #

# GRUPPE OPG.

$$I' = I_1 = I_2 = I_3$$



BERECHN:

$$R' = R_1 + R_2 + R_3 \Rightarrow 100 + 200 + 300 = \underline{\underline{600\Omega}}$$

$$I' = \frac{U'}{R'} = \frac{100}{600} = \underline{\underline{166,67mA}}$$

$$U_1 = I_1 \times R_1 \Rightarrow 0,16666 \times 100 = \underline{\underline{16,67V}}$$

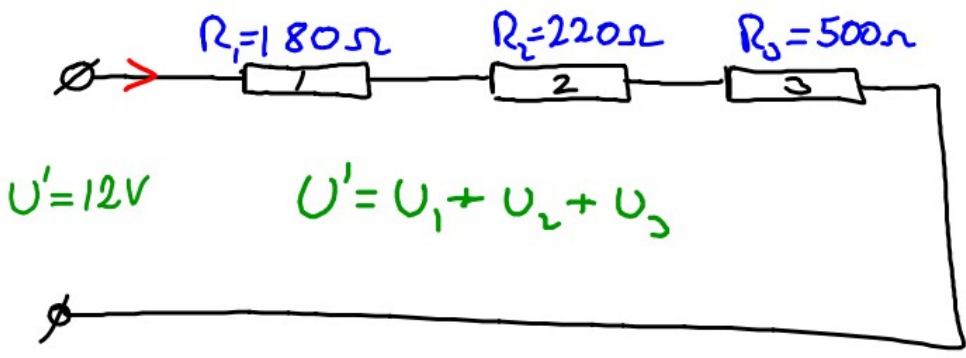
$$U_2 = I_2 \times R_2 = 0,16666 \times 200 = \underline{\underline{33,33V}}$$

$$U_3 = I_3 \times R_3 = 0,16666 \times 300 = \underline{\underline{50V}}$$

ELLER

$$U_3 = U' - U_1 - U_2 \Rightarrow 100 - 16,67 - 33,33 = \underline{\underline{50V}}$$

$$I' = I_1 = I_2 = I_3$$



### BRUG MATRIX

	U	I	R
1	2,4V	13,33 mA	180 Ω
2	2,93V	13,33 mA	220 Ω
3	6,67V	13,33 mA	500 Ω
Tot	12V	13,33 mA	900 Ω

①  $R' = R_1 + R_2 + R_3 = 180 + 220 + 500 = \underline{900\Omega}$

②  $I' = \frac{U'}{R'} = \frac{12}{900} = 0,01333 \sim \underline{13,33\mu A}$

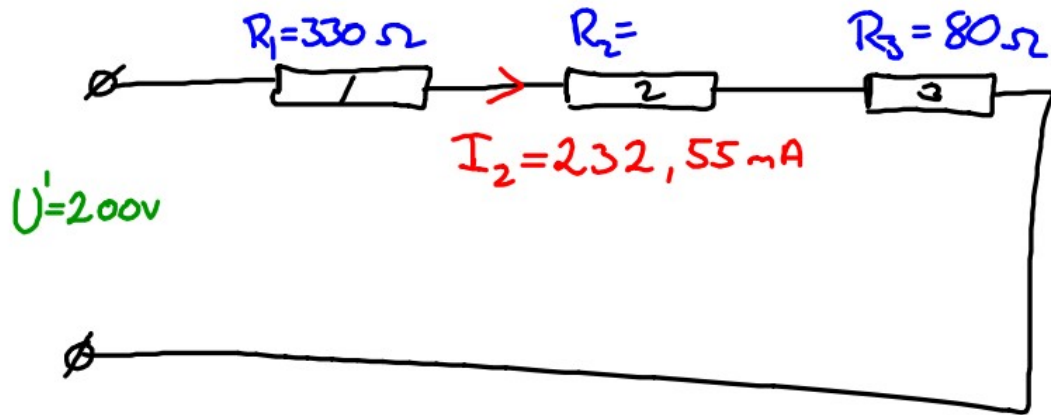
③  $U_1 = I_1 \times R_1 \Rightarrow 0,01333 \times 180 = \underline{2,4V}$

④  $U_2 = I_2 \times R_2 \Rightarrow 0,01333 \times 220 = \underline{2,93V}$

⑤  $U_3 = I_3 \times R_3 \Rightarrow 0,01333 \times 500 = \underline{6,67V}$

⑥  $U_3 = U' - U_1 - U_2 \Rightarrow 12 - 2,4 - 2,93 = \underline{6,67V}$

$$I' = I_1 = I_2 = I_3$$



	U	I	R
1		232,55 mA	330 $\Omega$
2		- - -	
3		- - -	80 $\Omega$
Tot	200 V	- - -	

$$\textcircled{1} R' = \frac{U'}{I'} \Rightarrow \frac{200}{0,23255} = \underline{\underline{860,03 \Omega}}$$

$$\textcircled{2} R_2 = R' - (R_1 + R_3) = 860,03 - (330 + 80) = \underline{\underline{450,03 \Omega}}$$

$$\textcircled{3} U_1 = I_1 \times R_1 = \underline{\underline{76,74 \text{ V}}}$$

$$\textcircled{4} U_2 = I_2 \times R_2 = \underline{\underline{104,65 \text{ V}}}$$

$$\textcircled{5} U_3 = I_3 \times R_3 = \underline{\underline{18,6 \text{ V}}}$$

$$\textcircled{1} U_1 = I_1 \times R_1 = \underline{\underline{76,56 \text{ V}}}$$

$$\textcircled{2} U_3 = I_2 \times R_3 = \underline{\underline{18,56 \text{ V}}}$$

$$\textcircled{3} U_2 = U' - U_1 - U_3 = \underline{\underline{104,94 \text{ V}}}$$

$$\textcircled{4} R_2 = \frac{U_2}{I_2} = \underline{\underline{452,33 \Omega}}$$

$$\textcircled{5} R' = R_1 + R_2 + R_3 = \underline{\underline{862,33 \Omega}}$$