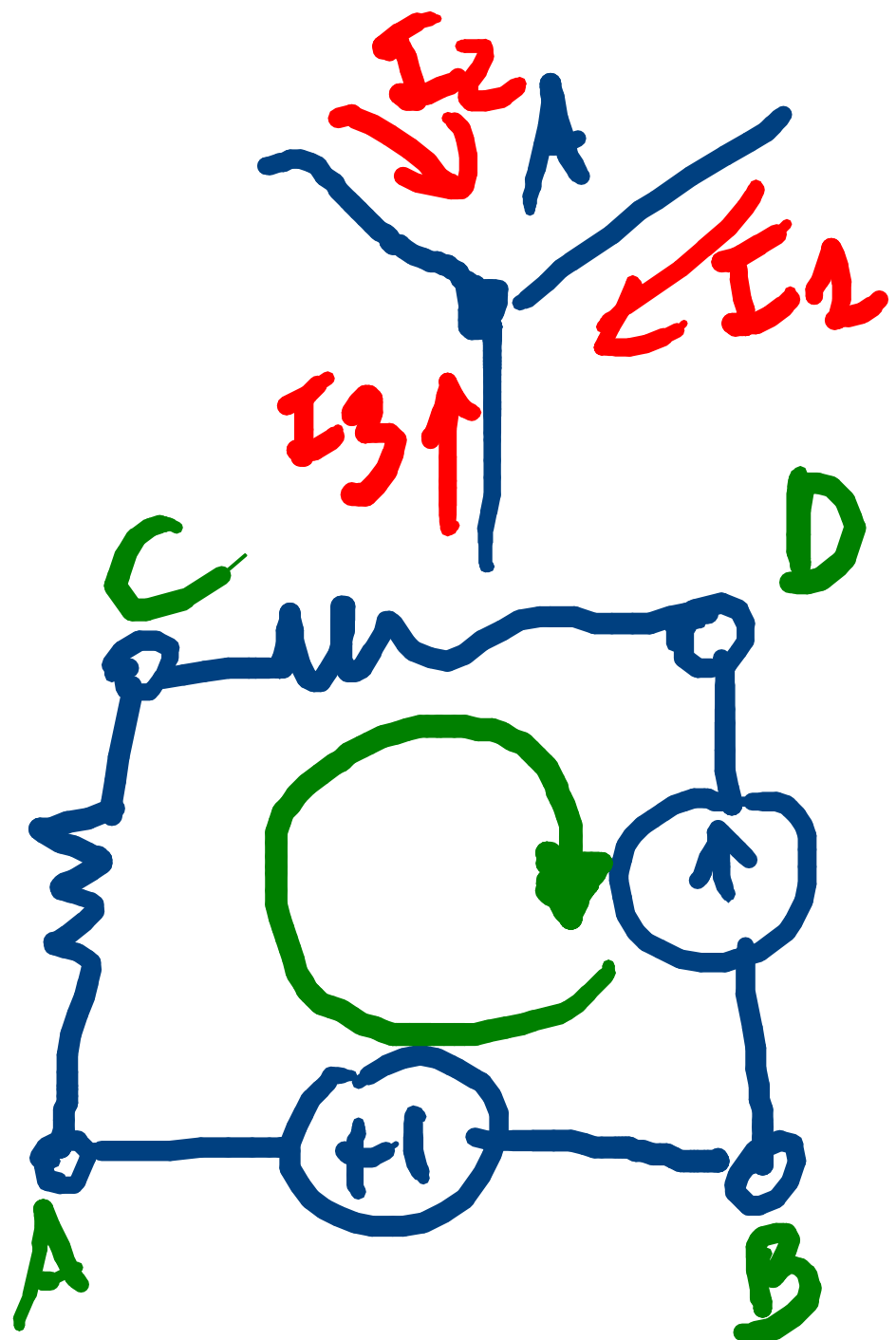


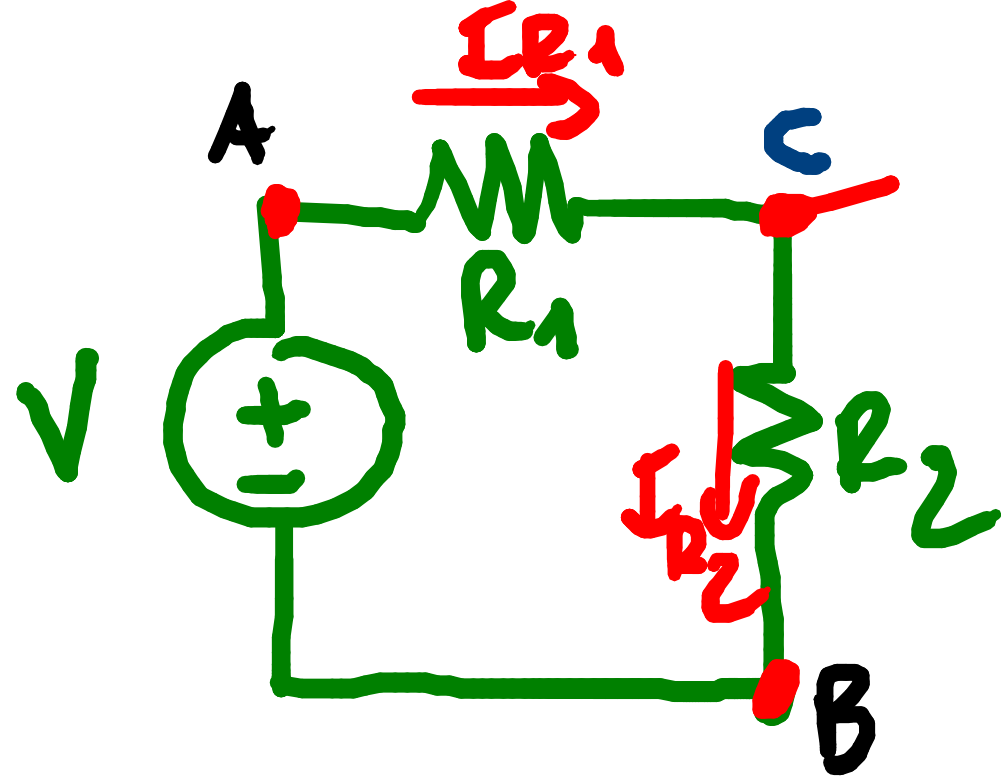
$$\frac{V_{AB}}{R} = I$$

$$V_{AB} = RI$$



$$I_1 + I_2 + I_3 = 0$$

$$V_{AB} + V_{CA} + V_{DC} + V_{BD} = 0$$



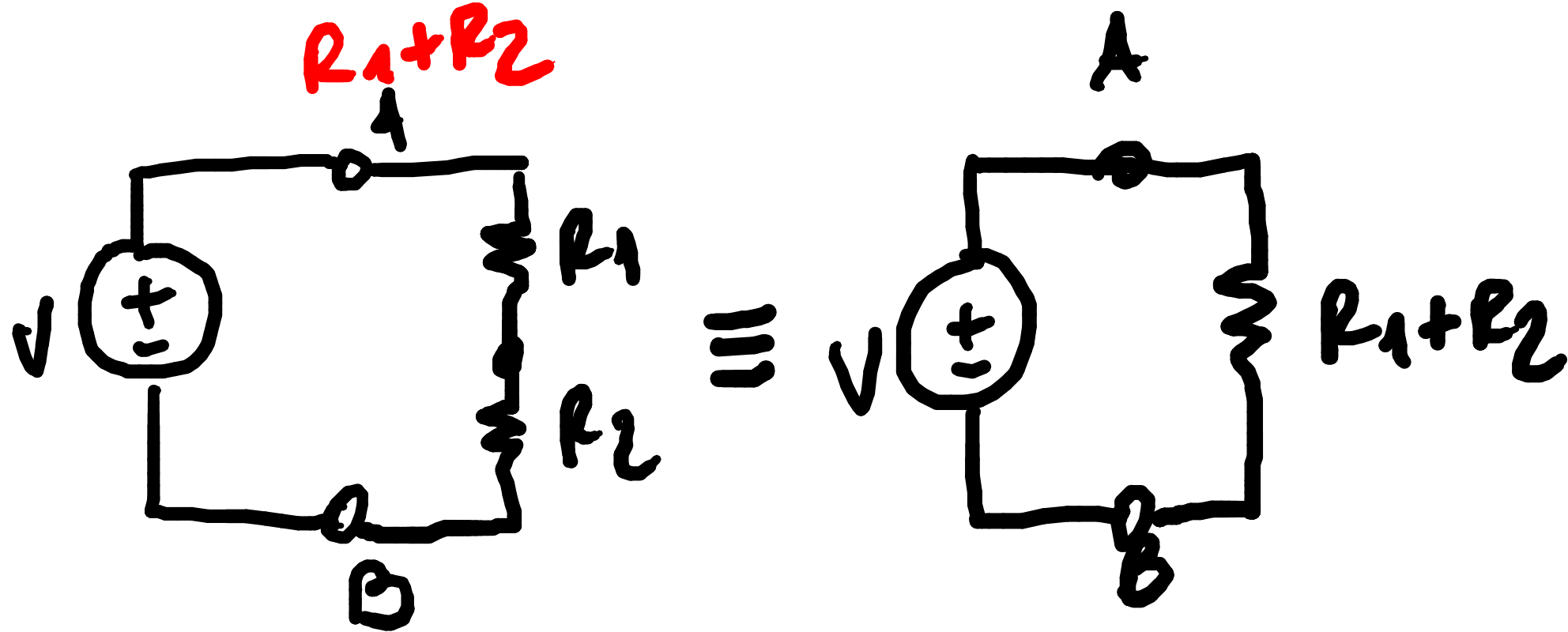
$$I_{R_1} = I_{R_2}$$

$$I_{R_1} - I_{R_2} = 0$$

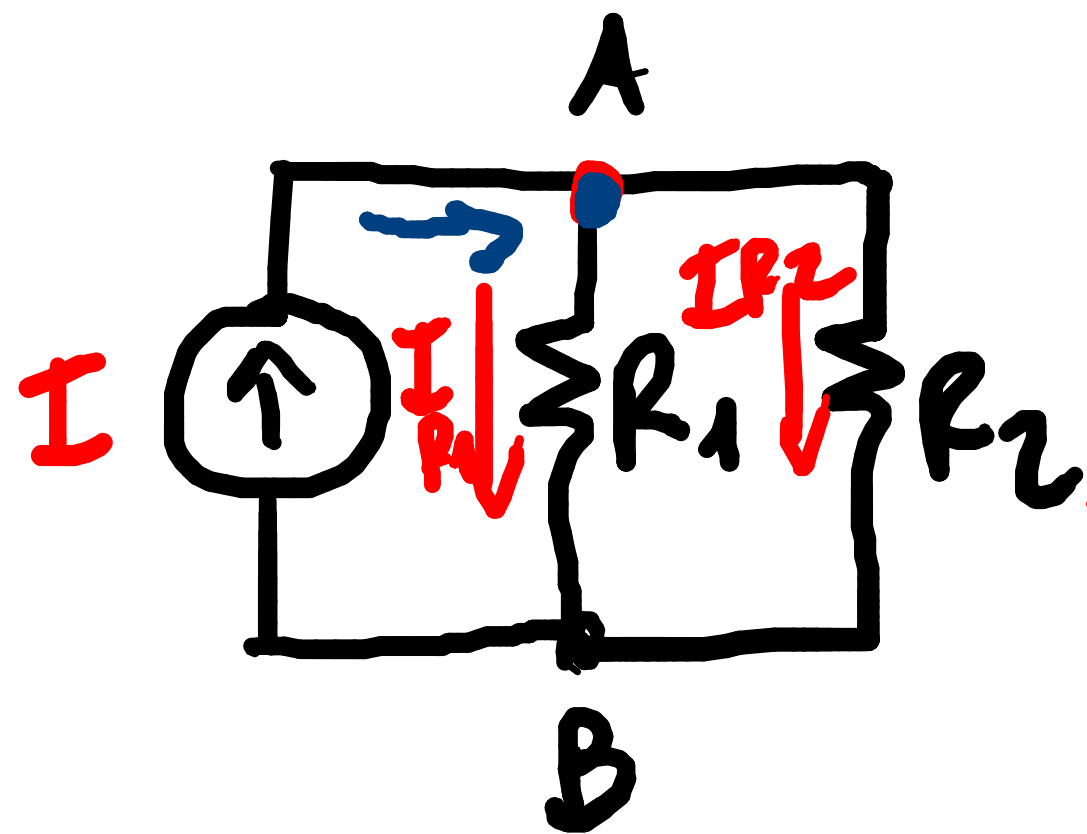
$$I_{R_1} = I_{R_2} = I_R$$

$$V = R_1 I_{R_1} + R_2 I_{R_2} = (R_1 + R_2) I_R$$

$$I_R = \frac{V}{R_1 + R_2}$$



$$V_{CB} = ? = R_2 I_R = \frac{R_2}{R_1 + R_2} V$$



$$\left. \begin{aligned} V_{AB} &= I_{R1} R_1 = R_2 I_{R2} \\ I &= I_{R1} + I_{R2} \\ R_1 I_{R1} &= R_2 I_{R2} \end{aligned} \right\}$$

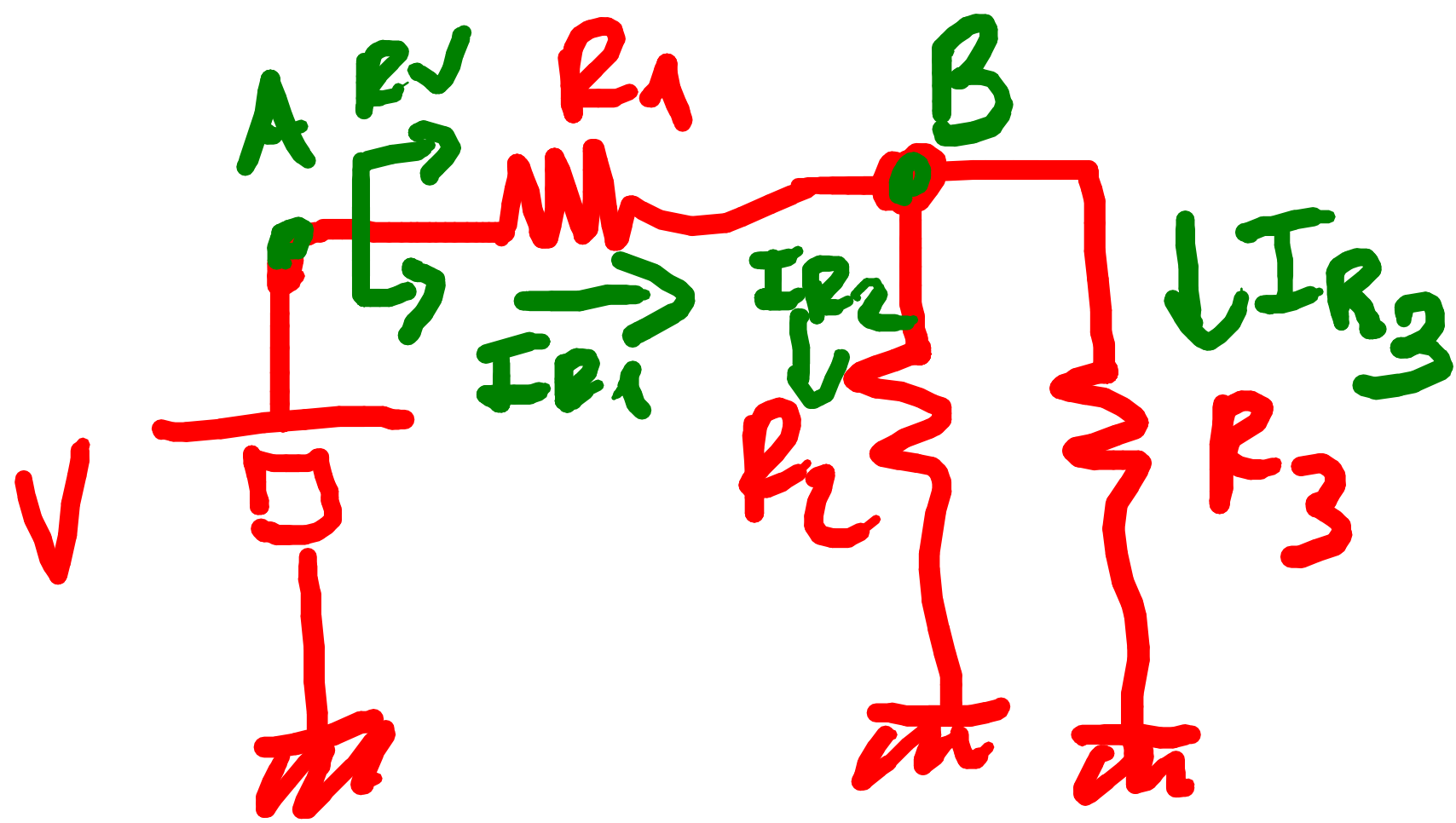
$$V_{AB} = I \frac{R_1 R_2}{R_1 + R_2}$$

$R_1 \parallel R_2$

$$\begin{aligned} R_1 \parallel R_2 \parallel R_3 &= \\ &= (R_1 \parallel R_2) \parallel R_3 = \\ &= R_1 \parallel (R_2 \parallel R_3) \end{aligned}$$

$$I_{R2} = \frac{V_{AB}}{R_2} = \frac{R_1}{R_1 + R_2} I$$

$$I_{R1} = \frac{V_{AB}}{R_1} = \frac{R_2}{R_1 + R_2} I$$

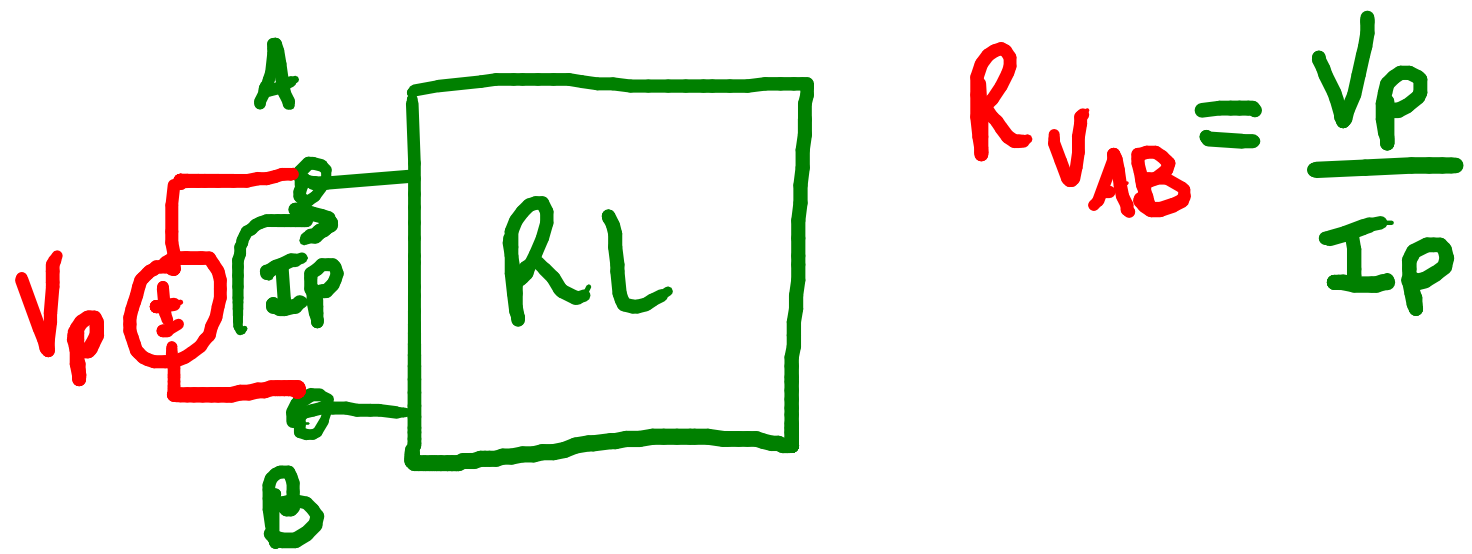


$$I_{R1} = \frac{V}{R_1 + R_2 \parallel R_3}$$

$$I_{R2} = \frac{R_3}{R_2 + R_3} I_{R1}$$

$$V_B = \frac{R_2 \parallel R_3}{R_2 \parallel R_3 + R_1} V$$

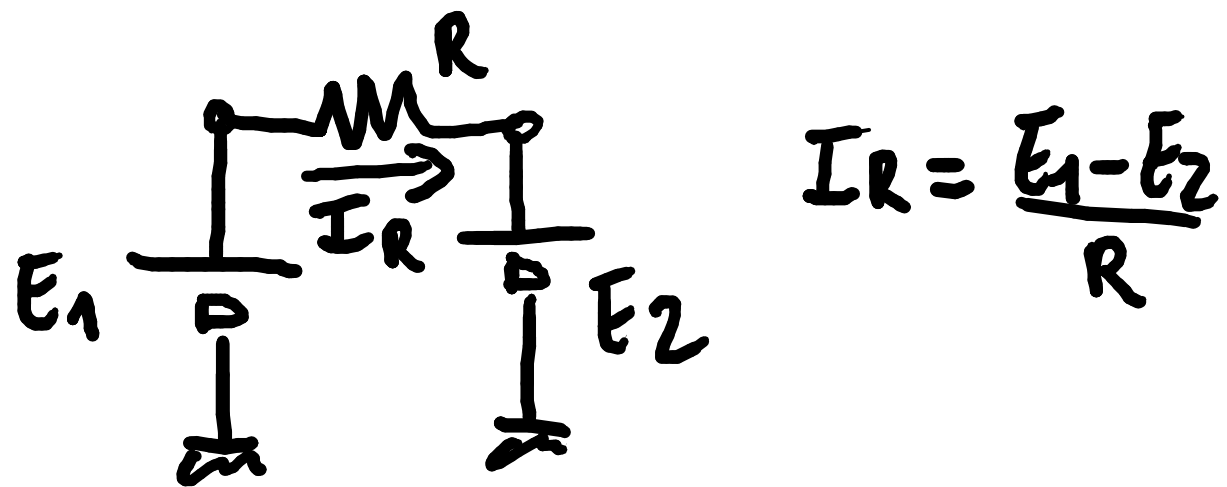
$$I_{R3} = \frac{R_2}{R_2 + R_3} I_{R1}$$



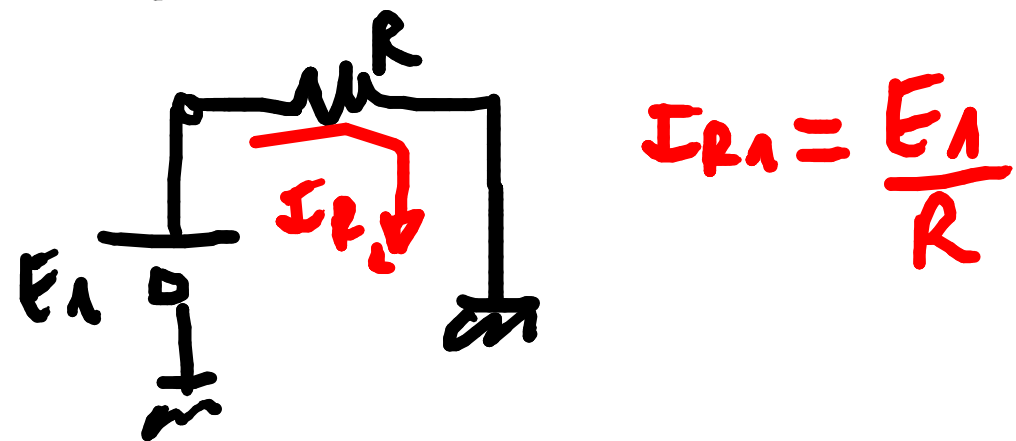
$$R_{VAB} = \frac{V_p}{I_p}$$



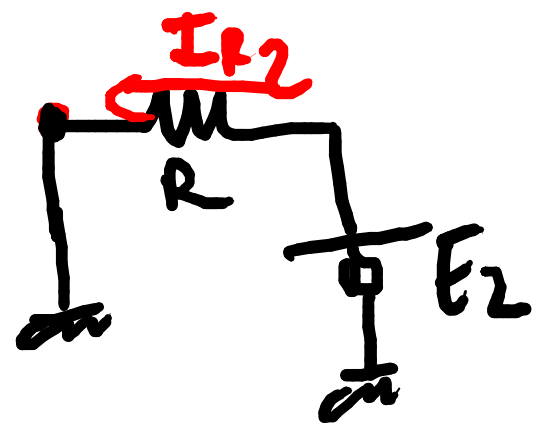
$$R_{VAB} = \frac{V_p}{I_p}$$



$$I_R = \frac{E_1 - E_2}{R}$$



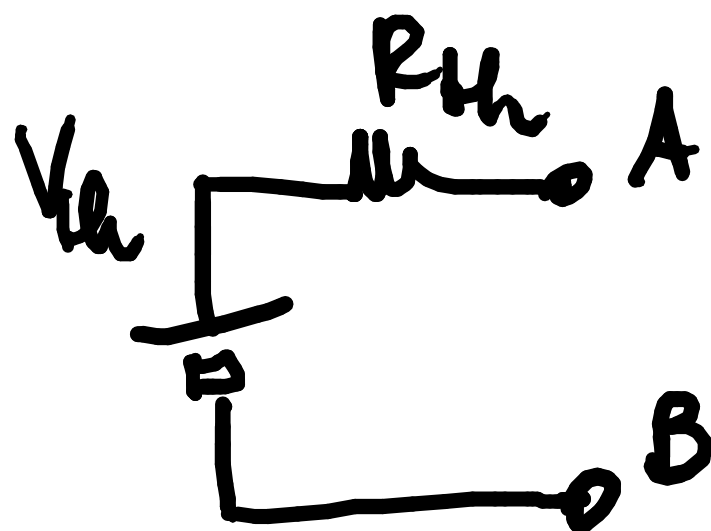
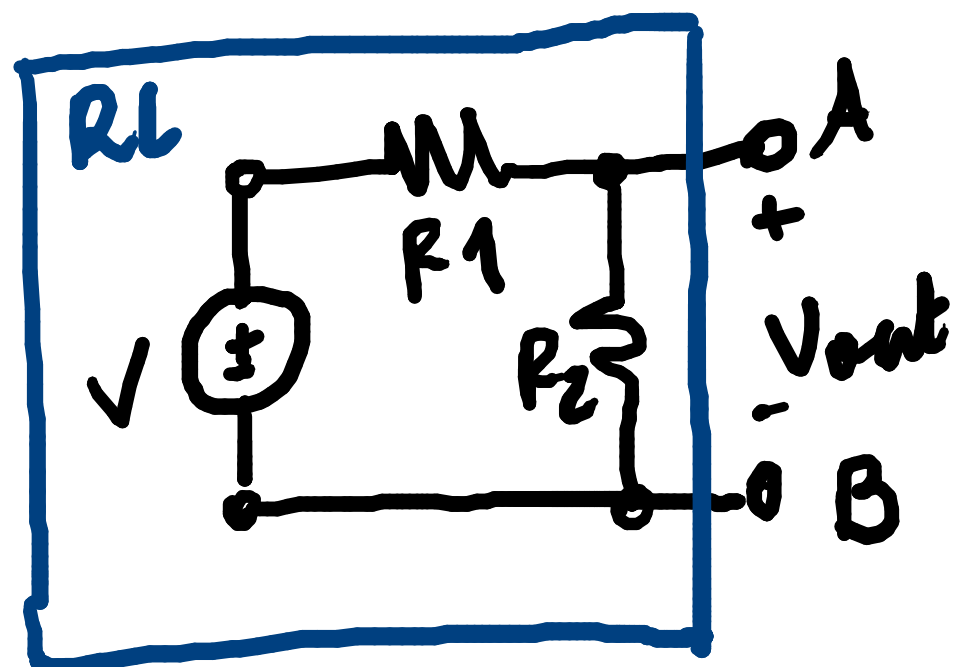
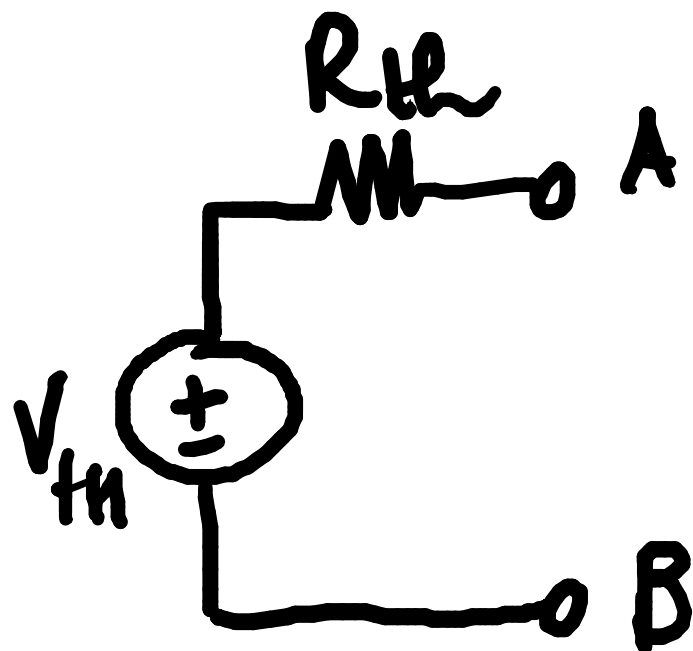
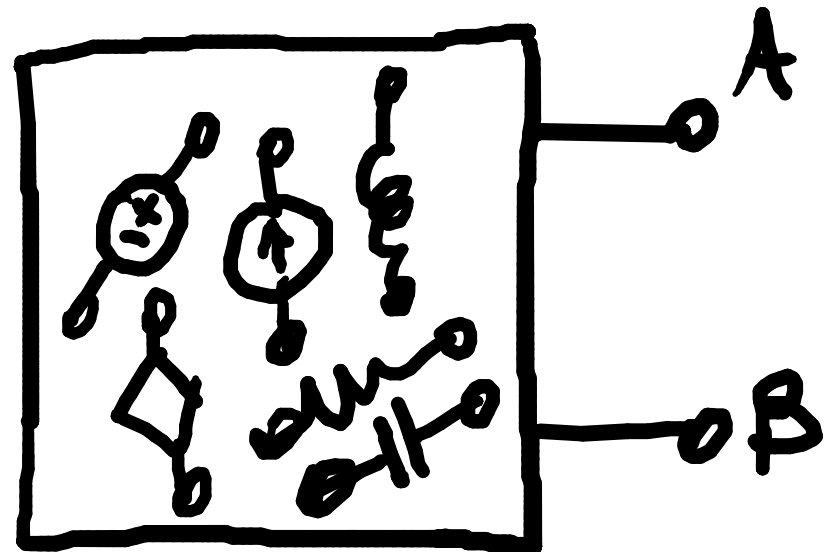
$$I_{R1} = \frac{E_1}{R}$$



$$I_{R2} = \frac{E_2}{R}$$

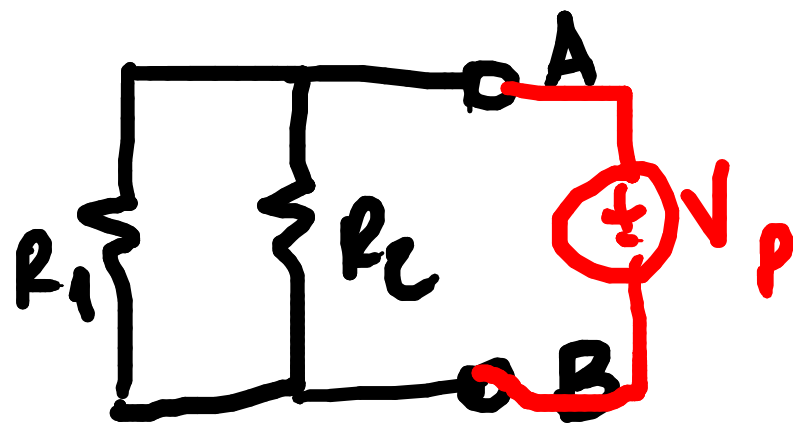
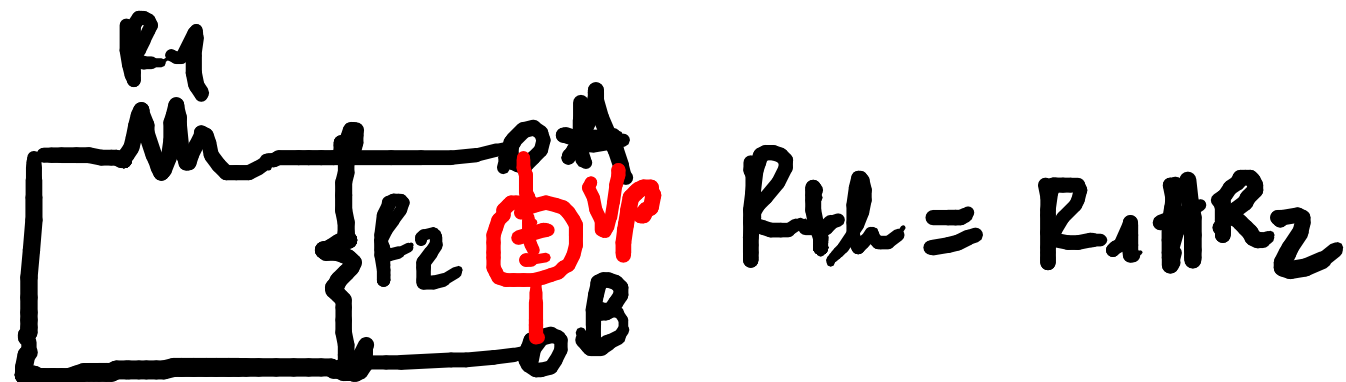
$$I_R = I_{R1} - I_{R2} = \frac{E_1 - E_2}{R}$$

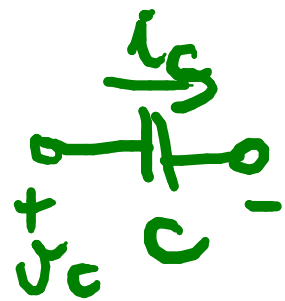
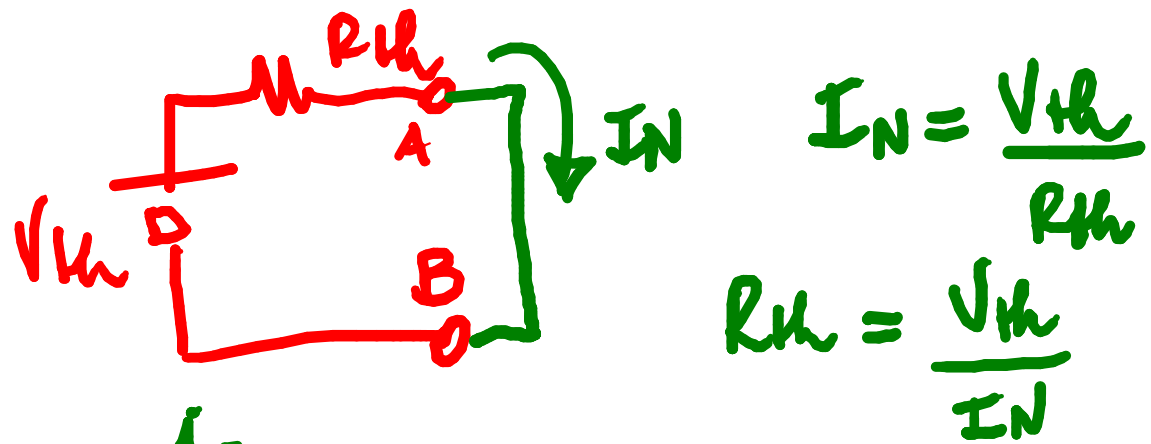
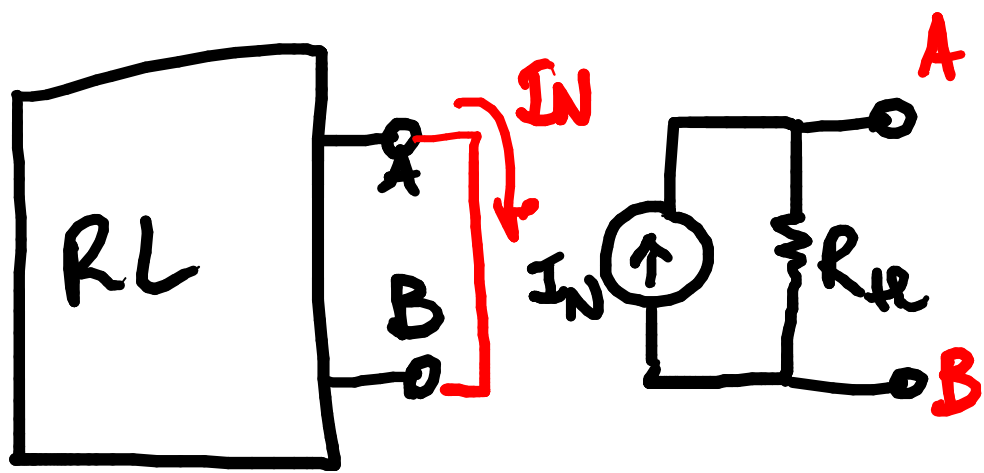
THEVENIN



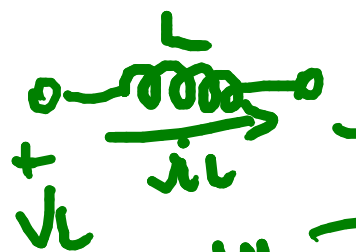
$$V_{th} = V \frac{R_2}{R_1 + R_2}$$

$R_{th} \Rightarrow$

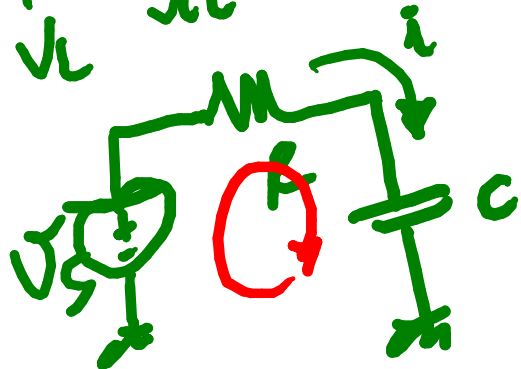




$$i_c = C \frac{dV_c}{dt} \Rightarrow V_c = \frac{1}{C} \int i_c dt$$



$$V_L = L \frac{di_L}{dt}$$



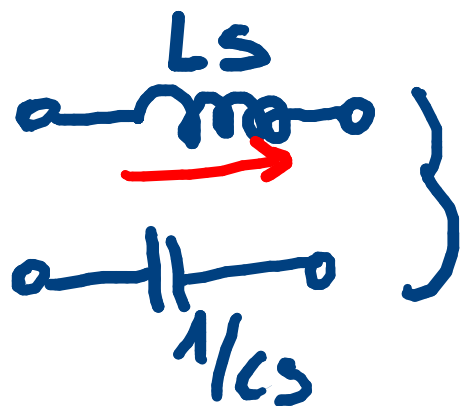
$$V_S = R i(t) + \frac{1}{C} \int i_c(t) dt$$

$$\int dt \rightarrow \frac{1}{s}$$

$$\frac{d}{dt} \rightarrow s$$

$$V_L(s) = \overbrace{Ls}^{Z(s)} I(s)$$

$$V_C(s) = \frac{I(s)}{\underbrace{Cs}_{Z(s)}}$$



$$V_L = [Ls] \cdot I$$

$$V_C = \left[\frac{1}{Cs} \right] \cdot I$$