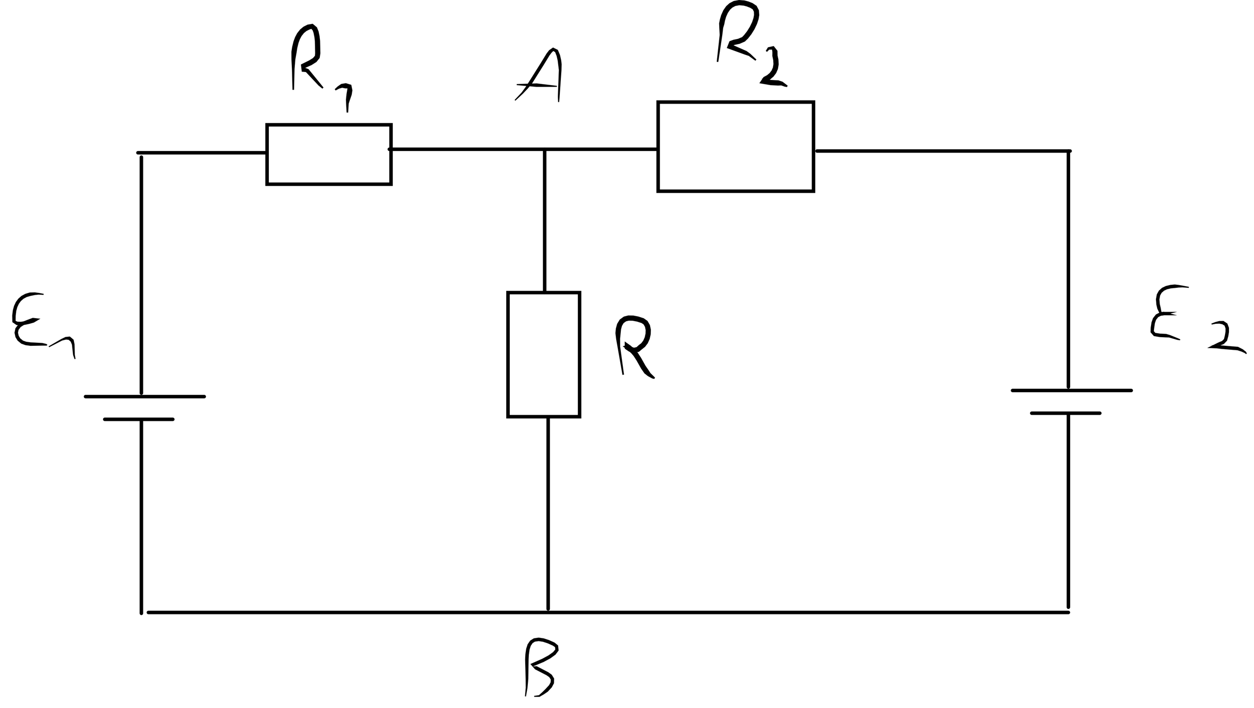
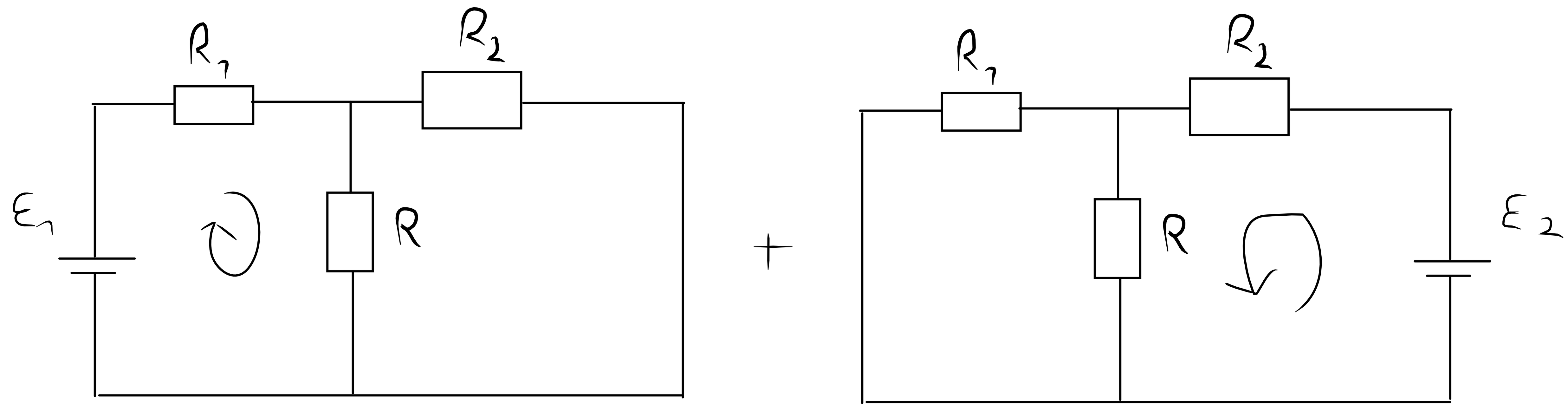




$$\varepsilon_1 = R_1 I + R I_R'$$

$$R_w = R_1 + \frac{R R_2}{R + R_2}$$

$$I = \frac{\varepsilon_1}{R_w}$$

$$\frac{R}{R_2} = \frac{I_2}{I_R'} = \frac{I - I_R'}{I_R'}$$

$$R I_R' = R_2 I - R_2 I_R'$$

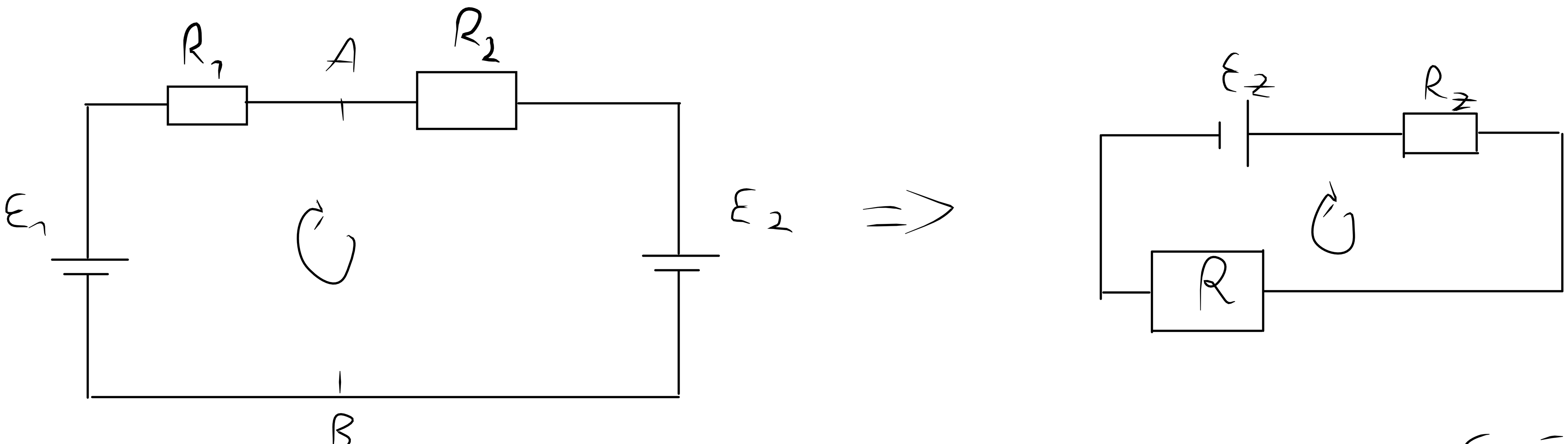
$$I_R' = \frac{\varepsilon_1}{R_1 + \frac{R R_2}{R + R_2}} \cdot \frac{R_2}{R + R_2} =$$

$$= \frac{\varepsilon_1 R_2}{R R_2 + R R_1 + R_1 R_2}$$

$$\varepsilon_2 = R_2 I + R I_R''$$

$$I_R'' = \frac{\varepsilon_2 R_1}{R R_2 + R R_1 + R_1 R_2}$$

$$I = \frac{\varepsilon_1 R_2 + \varepsilon_2 R_1}{R R_2 + R R_1 + R_1 R_2}$$



$$\varepsilon_z = I_R (R + R_z)$$

$$I = \frac{\varepsilon_1 - \varepsilon_2}{R_1 + R_2} \qquad u_{AB} = \varepsilon_1 - R_1 I = \varepsilon_2 + R_2 I$$

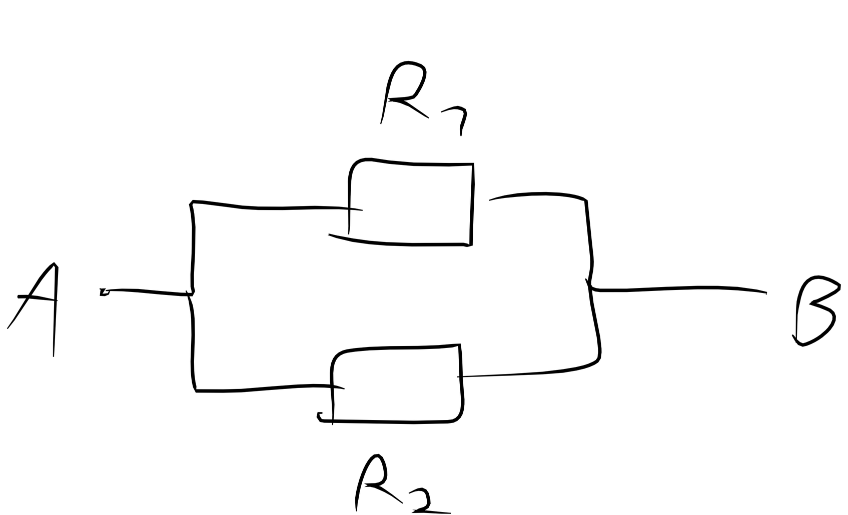
$$\varepsilon_z = \varepsilon_1 - \frac{R_1}{R_1 + R_2}(\varepsilon_1 - \varepsilon_2) = \varepsilon_2 + \frac{R_2}{R_1 + R_2}(\varepsilon_1 - \varepsilon_2)$$

$$2\varepsilon_z = \frac{1}{R_1 + R_2}\left(\cancel{\varepsilon_1 R_1} + \varepsilon_1 R_2 \cancel{- \varepsilon_1 R_1} + \varepsilon_1 R_2 + \varepsilon_2 R_1 + \cancel{\varepsilon_2 R_2} + R_2 \varepsilon_1 \cancel{- R_2 \varepsilon_2}\right)$$

$$\varepsilon_z = \frac{1}{R_1 + R_2}(\varepsilon_1 R_2 + \varepsilon_2 R_1)$$

$$I_R = \frac{\varepsilon_1 R_2 + \varepsilon_2 R_1}{R + \frac{R_1 R_2}{R_1 + R_2}} \cdot \frac{1}{R_1 + R_2} =$$

$$= \frac{\varepsilon_1 R_2 + \varepsilon_2 R_1}{R R_1 + R_1 R_2 + R R_2}$$



$$R_z = \frac{R_1 R_2}{R_1 + R_2}$$