## **Combinations of Resistors**

1. Series Connection (single path)

$$R_{\rm eq} = \sum_{k=1}^N R_k$$

$$I = I_1 = I_2 = I_3$$

$$arepsilon = V_{ ext{tot}} = \sum_{k=1}^N V_k$$

2. Parallel Connection (multiple paths)

$$\frac{1}{R_{\rm eq}} = \sum_{k=1}^N \frac{1}{R_k}$$

$$\varepsilon = V_1 = V_2 = V_3$$

$$I_{\mathrm{tot}} = \sum_{k=1}^{N} I_k$$