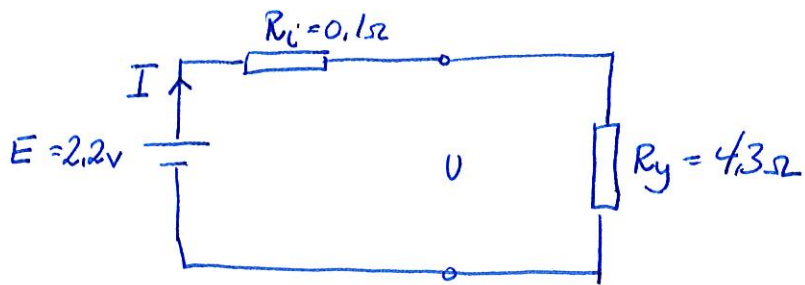


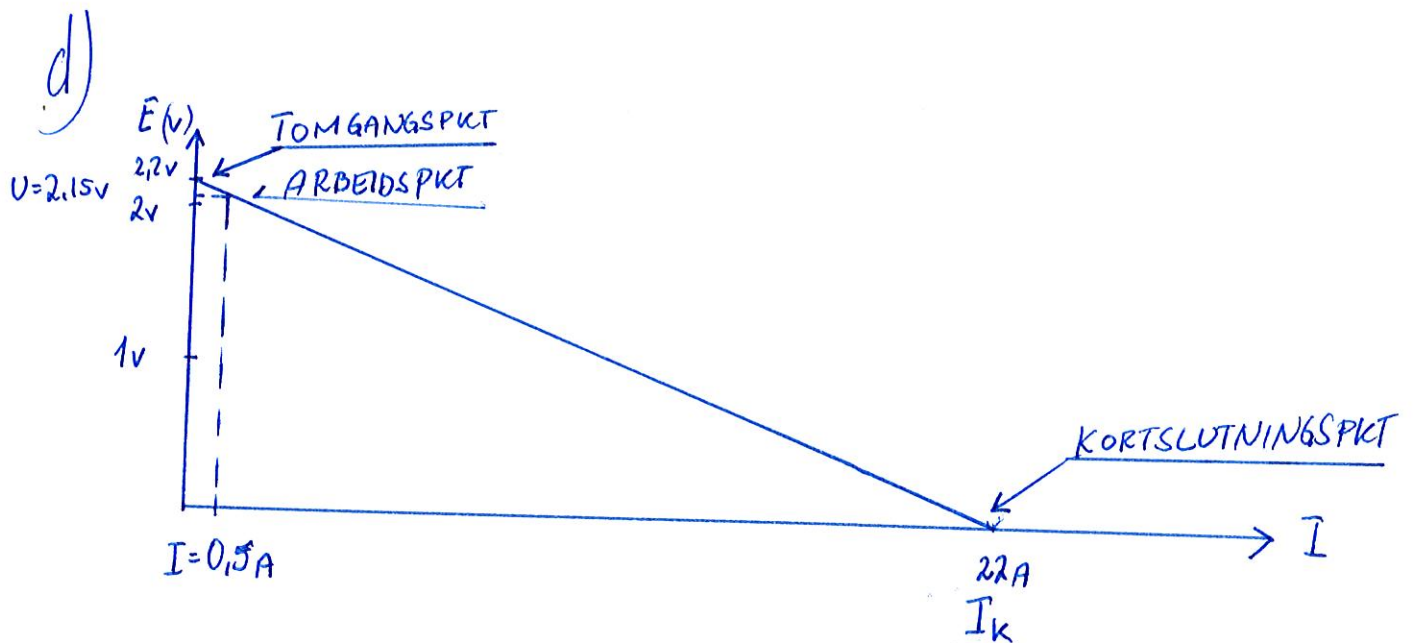
## 3.5.1



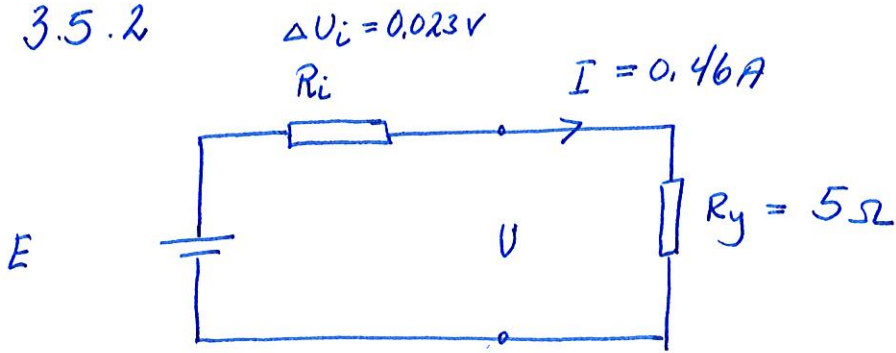
$$a) \quad I = \frac{E}{R_i + R_y} = \frac{2.2\text{V}}{0.1 + 4.3\Omega} = \underline{\underline{0.5\text{A}}}$$

$$b) \quad U = I \cdot R_y = 0.5\text{A} \cdot 4.3\Omega = \underline{\underline{2.15\text{V}}}$$

$$c) \quad I_k = \frac{E}{R_i} = \frac{2.2\text{V}}{0.1\Omega} = \underline{\underline{22\text{A}}}$$



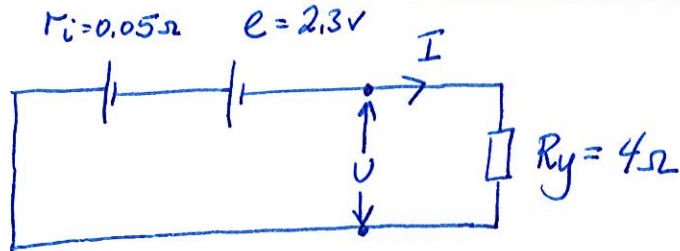
3.5.2



$$R_i = \frac{\Delta U_i}{I} = \frac{0,023 \text{ V}}{0,46 \text{ A}} = \underline{\underline{0,05 \Omega}}$$

$$E = I \cdot (R_i + R_y) = 0,46 \text{ A} \cdot (0,05 \Omega + 5 \Omega) = \underline{\underline{2,32 \text{ V}}}$$

3.5.3



$$E = e_1 + e_2 = 2,3 \text{ V} + 2,3 \text{ V} = \underline{\underline{4,6 \text{ V}}}$$

$$R_i = r_{i1} + r_{i2} = 0,05 \Omega + 0,05 \Omega = \underline{\underline{0,1 \Omega}}$$

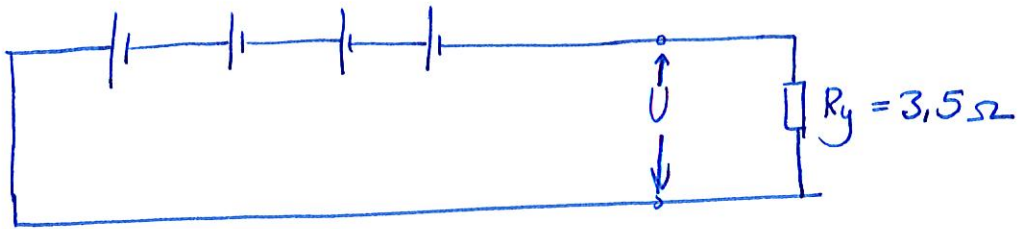
$$I = \frac{E}{R_i + R_y} = \frac{4,6 \text{ V}}{0,1 \Omega + 4 \Omega} = \underline{\underline{1,12 \text{ A}}}$$

$$U = I \cdot R_y = 1,12 \text{ A} \cdot 4 \Omega = \underline{\underline{4,49 \text{ V}}}$$

$$\Delta U_i = I \cdot r_i = 1,12 \text{ A} \cdot 0,05 \Omega = \underline{\underline{0,056 \text{ V}}}$$

3.5.4

$$e = 1,55\text{V} \quad r_i = 0,055\ \Omega$$



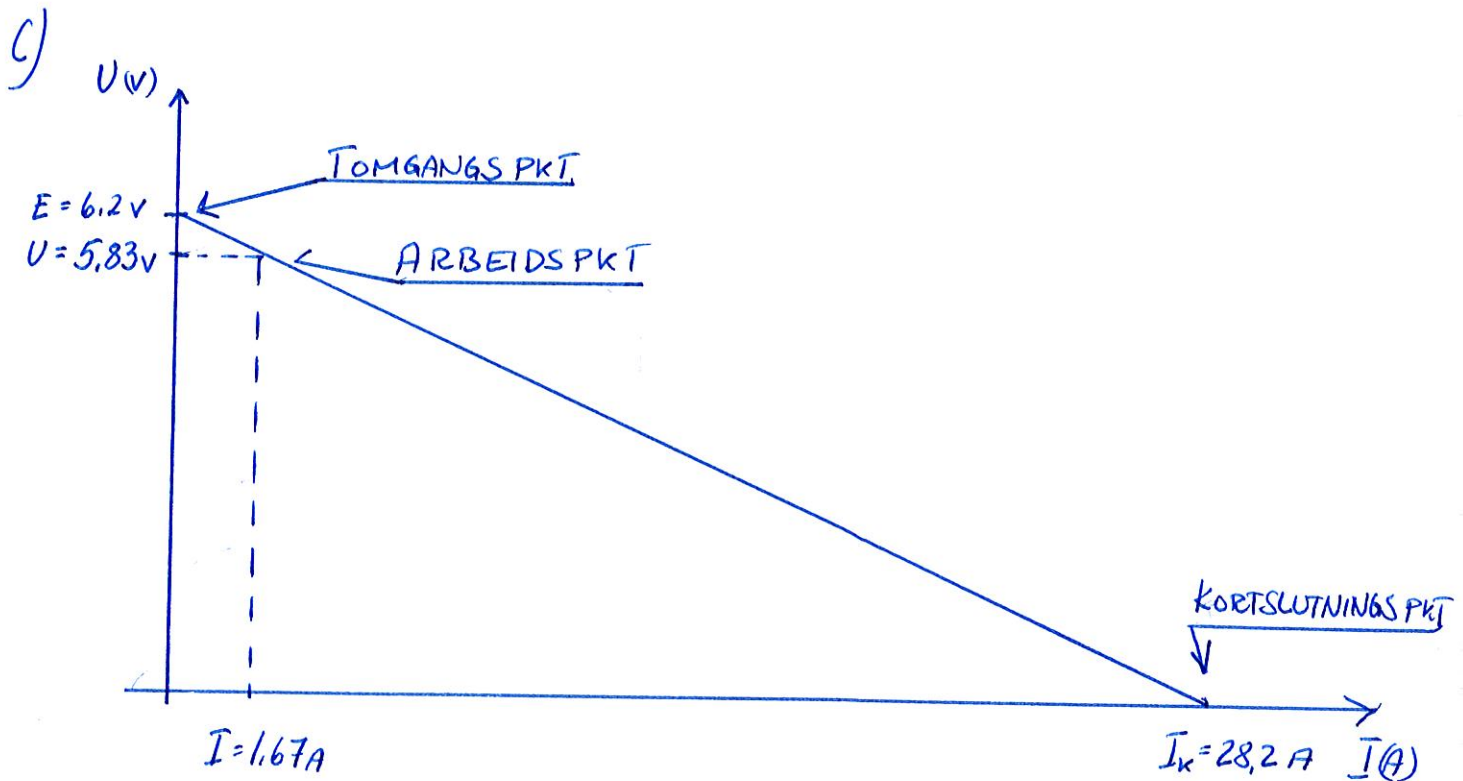
$$a) \quad E = e \cdot 4 = 1,55\text{V} \cdot 4 = \underline{6,2\text{V}}$$

$$R_i = r_i \cdot 4 = 0,055\ \Omega \cdot 4 = \underline{0,22\ \Omega}$$

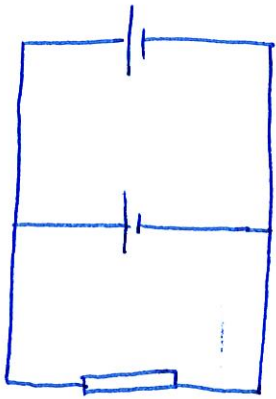
$$I = \frac{E}{R_i + R_y} = \frac{6,2\text{V}}{0,22\ \Omega + 3,5\ \Omega} = \underline{1,67\text{A}}$$

$$b) \quad U = I \cdot R_y = 1,67\text{A} \cdot 3,5\ \Omega = \underline{5,83\text{V}}$$

$$I_k = \frac{E}{R_i} = \frac{6,2\text{V}}{0,22\ \Omega} = 28,2\text{A}$$



## 3.5.5



$$e = 1.55\text{V}$$

$$r_i = 0.055\Omega$$

$$R_y = 4\Omega$$

$$E = e_1 = e_2 = \underline{1.55\text{V}}$$

$$\frac{1}{R_i} = \frac{1}{r_{i1}} + \frac{1}{r_{i2}} = \frac{1}{0.055\Omega} + \frac{1}{0.055\Omega}$$

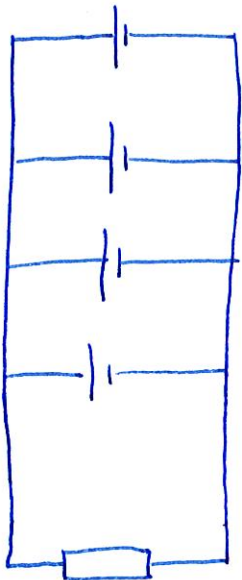
$$R_i = \underline{0.025\Omega}$$

$$I = \frac{E}{R_i + R_y} = \frac{1.55\text{V}}{0.025\Omega + 4\Omega} = \underline{0.385\text{A}}$$

$$U = I \cdot R_y = 0.385\text{A} \cdot 4\Omega = \underline{1.54\text{V}}$$

$$I_2 = I_1 = \frac{I}{2} = \frac{0.385\text{A}}{2} = \underline{0.193\text{A}}$$

## 3.5.6



$$e = 1.6\text{V}$$

$$r_i = 0.04\Omega$$

$$R_y = 2.5\Omega$$

$$a) E = e_1 = e_2 = \dots = \underline{1.6\text{V}}$$

$$\frac{1}{R_i} = \frac{1}{r_i} \cdot n = \frac{1}{0.04\Omega} \cdot 4 =$$

$$R_i = \underline{0.01\Omega}$$

$$I = \frac{E}{R_i + R_y} = \frac{1.6\text{V}}{0.01\Omega + 2.5\Omega} = \underline{0.637\text{A}}$$

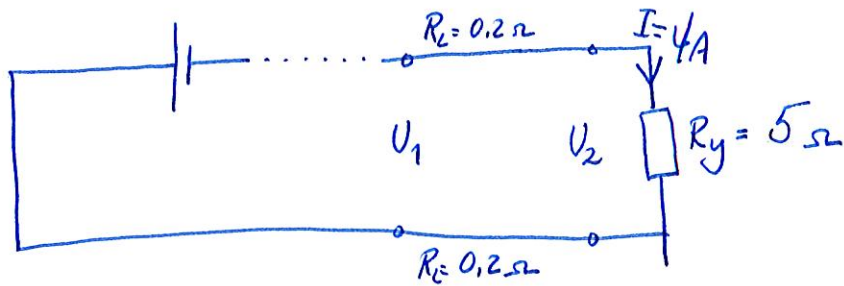
$$b) U = I \cdot R_y = 0.637\text{A} \cdot 2.5\Omega = \underline{1.59\text{V}}$$

$$I_k = \frac{U}{R_i} = \frac{1.59\text{V}}{0.01\Omega} = \underline{159.4\text{A}}$$

3.5.7

$$r_{i1} = 0,1 \Omega$$

$$e = 2,2 \text{ V}$$



$$e \cdot n = I \cdot (r_{i1} \cdot n + R_y + R_L \cdot 2)$$

$$2,2 \text{ V} \cdot n = 4 \text{ A} \cdot (0,1 \Omega \cdot n + 5 \Omega + 0,2 \Omega \cdot 2)$$

$$2,2 \text{ V} \cdot n = 0,4 \text{ V} \cdot n + 20 \text{ V} + 1,6 \text{ V}$$

$$(2,2 \text{ V} \cdot n) - (0,4 \text{ V} \cdot n) = 20 \text{ V} + 1,6 \text{ V}$$

$$1,8 \text{ V} \cdot n = 21,6 \text{ V}$$

$$n = \frac{21,6 \text{ V}}{1,8 \text{ V}} = \underline{\underline{12}}$$