

1.

$$I_k = 5,8 \text{ A}$$

$$R = 15 \text{ ohm}$$

$$\underline{\Delta I = 2\%}$$

$$I_z = 0,98 * I_k = 0,98 * 5,8 = 5,648 \text{ A}$$

$$U = I_z * R = 5,648 * 15 = 85,26 \text{ V}$$

$$\underline{R_i = U / (I_k - I_z) = 85,26 / (5,8 - 5,648) = 735 \text{ ohm}}$$

2.

$$R = 25 \text{ ohm}$$

$$I = 0,95 \text{ A}$$

$$\underline{R_i = 1,2 \text{ kohm}}$$

$$U = R * I = 25 * 0,95 = 23,75 \text{ V}$$

$$\Delta I = U / R_i = 23,75 / 1200 = 19,8 \text{ mA}$$

$$\underline{I_k = I + \Delta I = 950 + 19,8 = 969,8 \text{ mA}}$$

3.

$$R = 75 \Omega$$

$$R_i = 900 \Omega$$

$$\underline{I_k = 850 \text{ mA}}$$

$$U = R_i * (I_k - I) = R * I$$

$$R_i * I_k - R_i * I = R * I$$

$$\underline{I = (R_i * I_k) / (R_i + R) = (900 * 0,85) / (900 + 75) = 0,785 \text{ A}}$$

4.

$$\Delta I = 5\%$$

$$R_i = 700 \text{ ohm}$$

$$U = R * I = R_i * (I_k - I)$$

$$U = R * 0,95 * I_k = R_i * 0,05 * I_k$$

$$R * 0,95 = R_i * 0,05$$

$$R = R_i * (0,05 / 0,95) = 36,84 \Omega$$