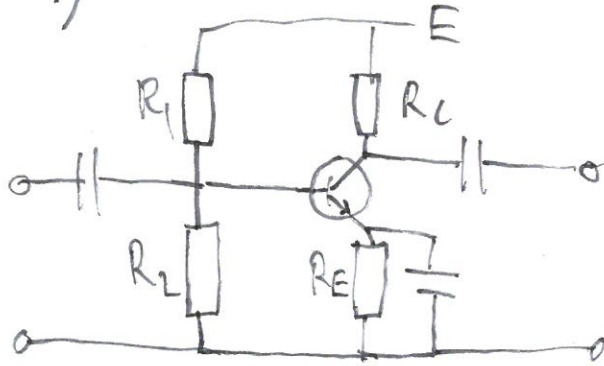


4.9) 11-11-14



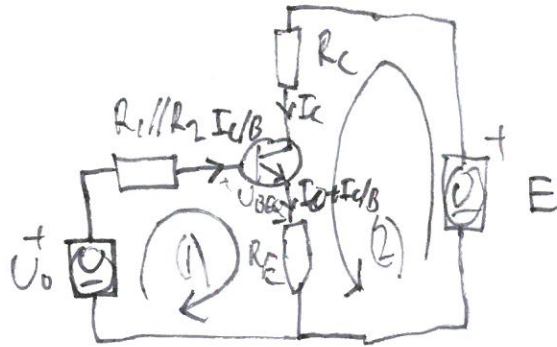
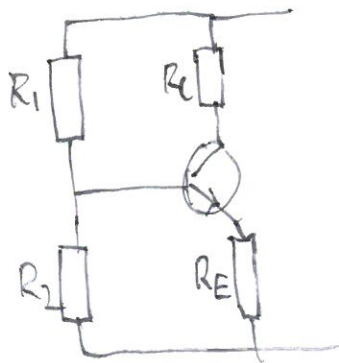
$$I_{CQ} = 5,0 \text{ mA} \quad R_L = 2 \text{ k}\Omega$$

$$U_{CEQ} = 4,0 \text{ V} \quad E = 12 \text{ V}$$

$$U_{BEQ} = 0,70 \text{ V} \quad B = 50$$

$$(0) R_1 // R_2 = 0,1 \cdot B \cdot R_E$$

Litströmschema:



$$U_0 = \frac{R_2 \cdot E}{R_1 + R_2}$$

Arb. punkt. mitt på stg. m. arb. linjen ⇒

$$\frac{1}{R_C} + \frac{1}{R_L} = \frac{I_{CQ}}{U_{CEQ}} \Leftrightarrow R_C = \frac{1}{-\frac{1}{R_L} + \frac{I_{CQ}}{U_{CEQ}}} \approx 1,33 \text{ k}\Omega$$

$$(1) U_0 - R_1 // R_2 \cdot \frac{I_{CQ}}{B} - U_{BEQ} - R_E \cdot (I_{CQ} + \frac{I_{CQ}}{B}) = 0$$

$$(2) E - R_C \cdot I_{CQ} - U_{CEQ} - R_E \cdot (I_{CQ} + \frac{I_{CQ}}{B}) = 0$$

$$(2) \Rightarrow R_E = \frac{E - U_{CEQ} - R_C \cdot I_{CQ}}{I_{CQ} + \frac{I_{CQ}}{B}} \approx 261 \Omega$$

$$(3) U_0 = \frac{R_2 \cdot E}{R_1 + R_2} \cdot \frac{R_1}{R_1} = \frac{E \cdot R_1 // R_2}{R_1}$$

$$(0) = R_1 // R_2 = 0,1 \cdot 50 \cdot R_E = 5 \cdot 261 \approx 13 \text{ k}\Omega$$

$$(1) \Rightarrow U_0 = R_1 // R_2 \cdot \frac{I_{CQ}}{B} + U_{BEQ} + R_E \cdot (I_{CQ} + \frac{I_{CQ}}{B}) \approx$$

$$(3) \Rightarrow R_1 = \frac{E \cdot R_1 // R_2}{U_0} \approx 7,25 \text{ k}\Omega$$

$$R_2 = \frac{1}{\frac{1}{R_1 // R_2} - \frac{1}{R_1}} \approx 1,59 \text{ k}\Omega$$