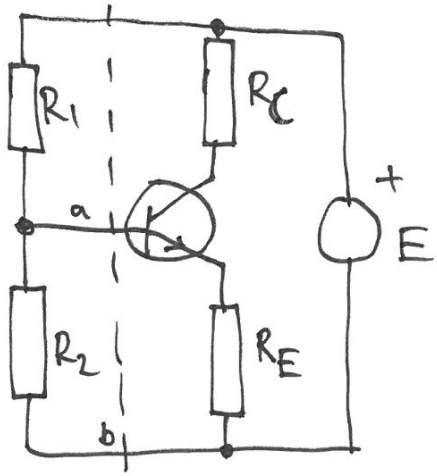
4-3) Likströmsschema:

$E = 10V$, $R_C = 1k\Omega$

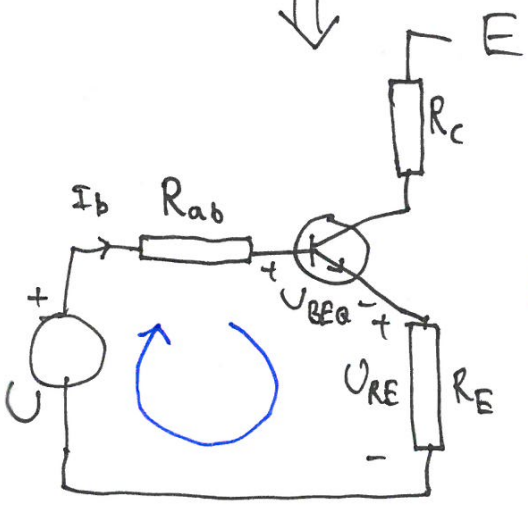
$B = 100$, $U_{BEQ} = 0{,}7V$

$I_{CQ} = 3{,}5mA$ $U_{CEQ} = 4{,}5V$

$R_1 // R_2 = 0{,}1 \cdot B \cdot R_E$



$$R_E = \frac{U_{RE}}{I_E} = \frac{E - R_C I_{CQ} - U_{CEQ}}{I_C \cdot (1 + \frac{1}{B})} = \frac{2{,}0}{3{,}535m} = 565{,}8\Omega$$



Bestäm R_1 & R_2:

$$R_{ab} = R_1 // R_2 = 0{,}1 \cdot B \cdot R_E = 5{,}6584k\Omega$$

$$U = \frac{E \cdot R_2}{R_1 + R_2} \Rightarrow \frac{U}{E} = \frac{R_2}{R_1 + R_2} \quad (*)$$

KVL:

$$U - I_b \cdot R_{ab} - U_{BEQ} - U_{RE} = 0 \Leftrightarrow$$

$$U = I_{CQ}/B \cdot R_{ab} + U_{BEQ} + U_{RE}$$

$$= 3{,}5m/100 \cdot 5{,}658k + 0{,}7 + 2 = 2{,}898\ V$$

$$R_{ab} = R_1 // R_2 = \frac{R_1 \cdot R_2}{R_1 + R_2} = /(*)\text{insatt}/ = \frac{R_1 \cdot U}{E} \Rightarrow R_1 = \frac{R_{ab} \cdot E}{U} = 19{,}52k\Omega$$

$$R_{ab} = \frac{R_1 \cdot R_2}{R_1 + R_2} \Rightarrow R_2 = \frac{R_{ab} \cdot R_1}{R_1 - R_{ab}} = 7{,}97k\Omega$$

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R_E	$= 567\Omega$
R_1	$= 19{,}5k\Omega$
R_2	$= 7{,}97k\Omega$