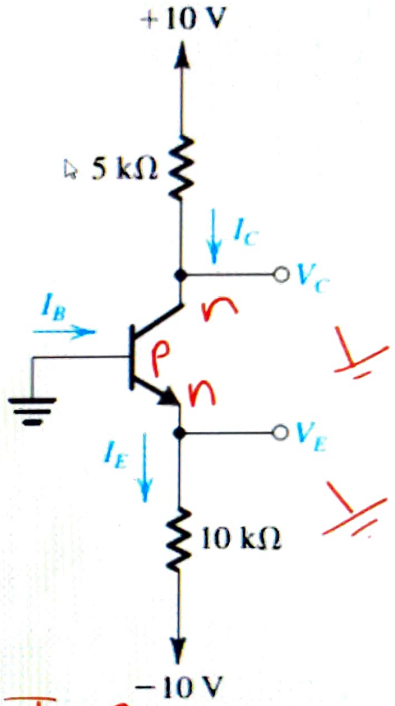
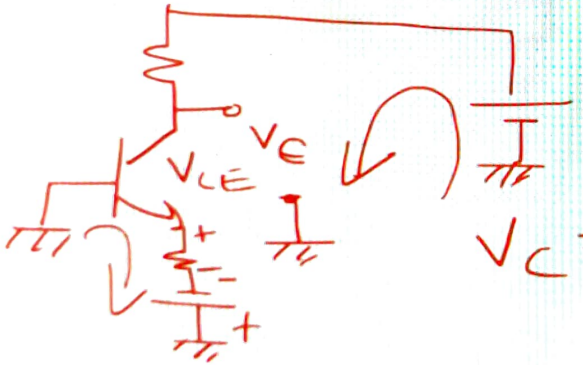
Problem

- In the circuit shown in Fig., the voltage at the emitter was measured and found to be –0.7 V. If $\beta = 50$, find I_E, I_B, I_C, and V_C.

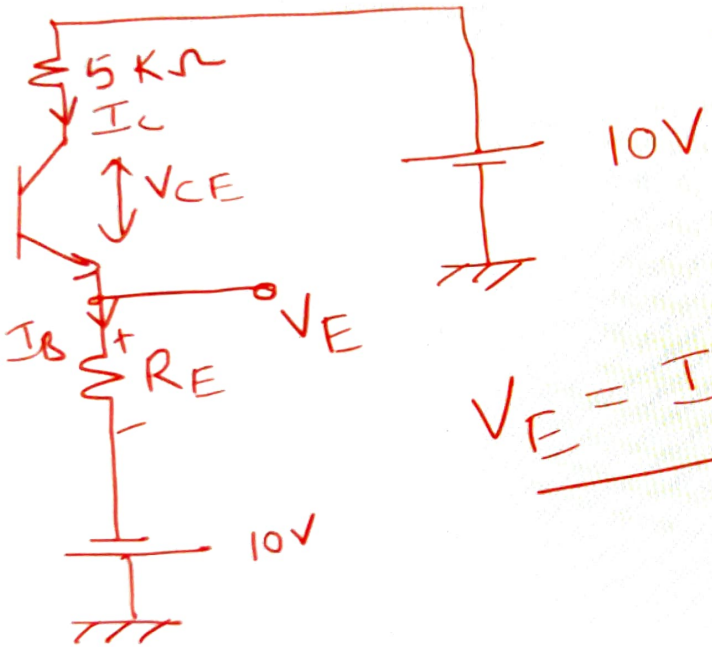




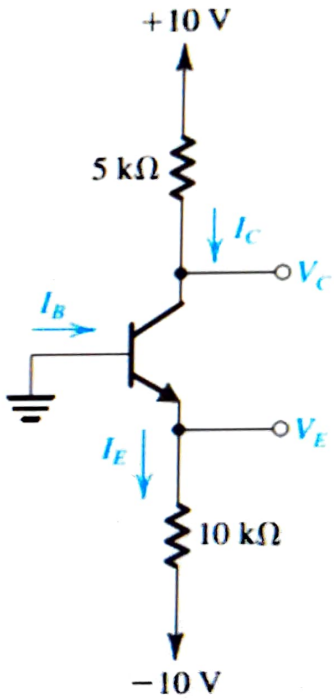
$$V_C = V_{CE} + I_E R_E - 10$$

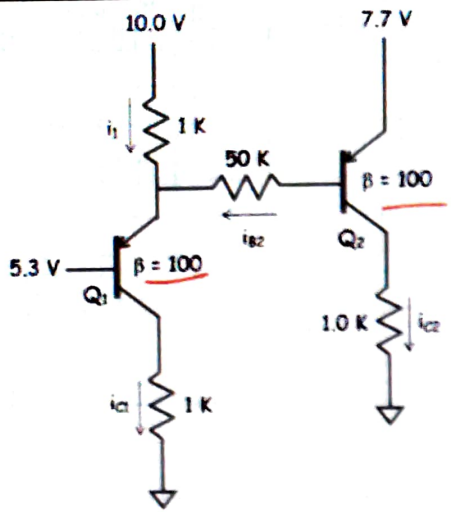
$V_{CE} = V_C - V_E$

$10 = V_C - 5$



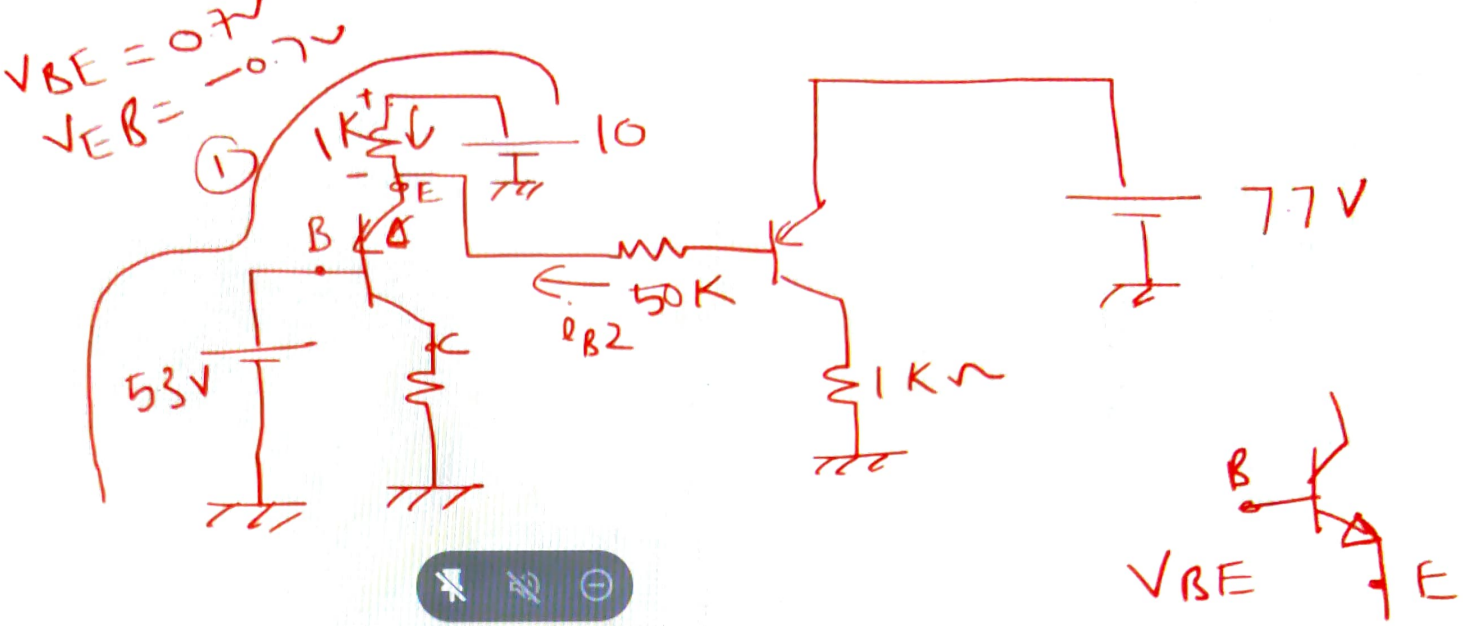
$V_E = I_E R_E - 10$



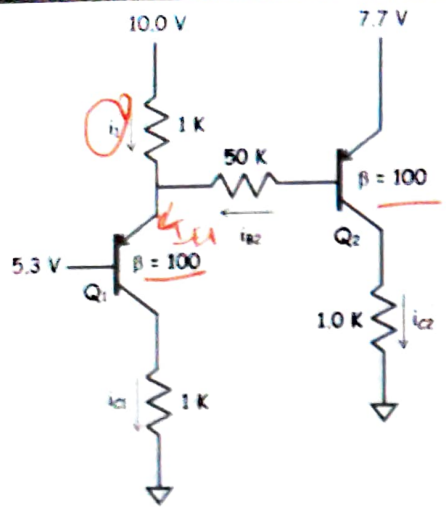


$V_{BE} = 0.7V$

$V_{EB} = -0.7V$

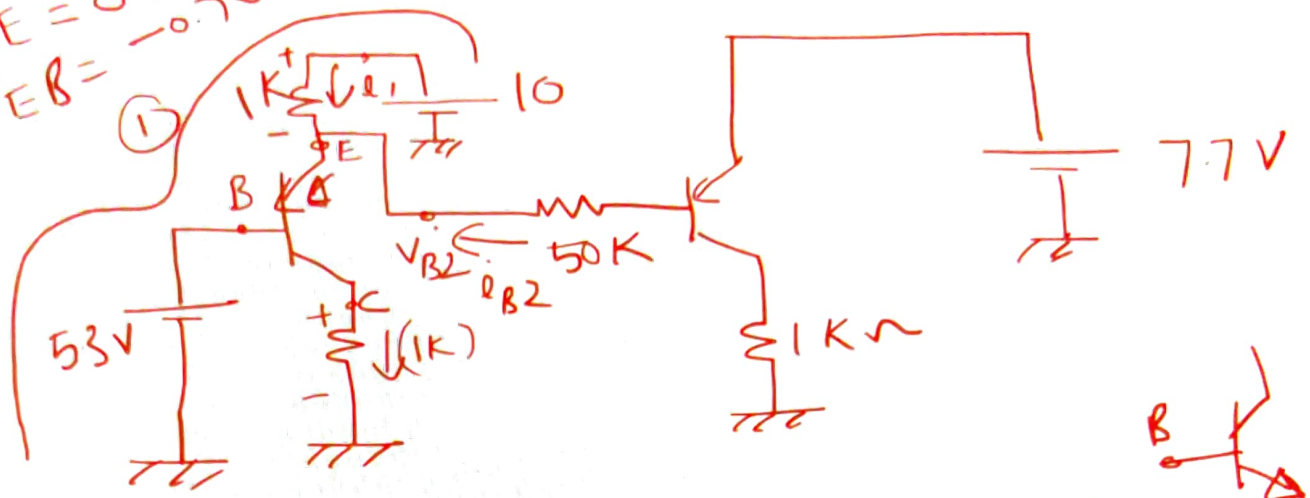


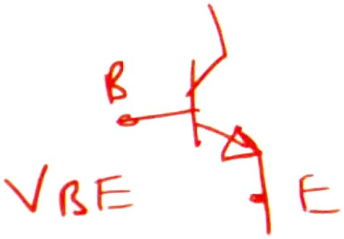
$-5.3-0.7$



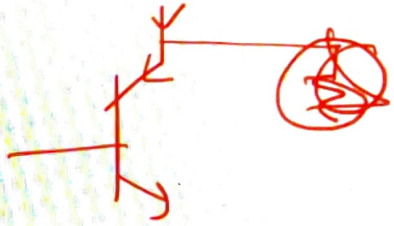
$V_{BE} = 0.7\,V$

$V_{EB} = -0.7\,V$



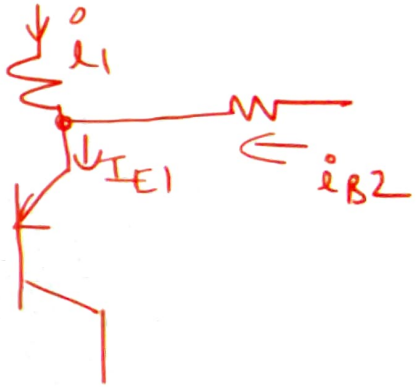


$$-5.3 - 0.7 - (1K)\,i_1 + 10 = 0$$

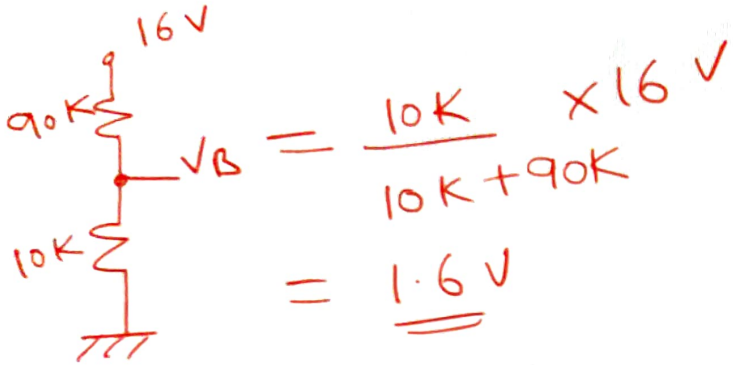


$$i_1 + i_{B2} = i_{E1}$$

$$V_{B2} = V_{EC} + (1K)\,R_e$$

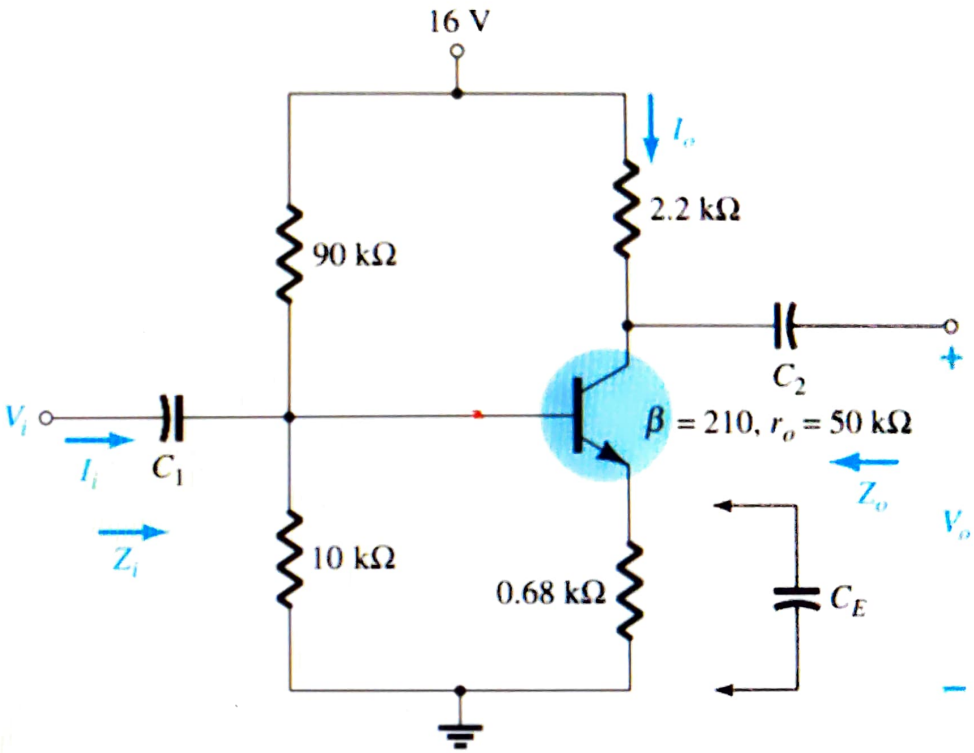


Voltage divider configuration



$$V_B = \frac{10K}{10K + 90K} \times 16\,V$$

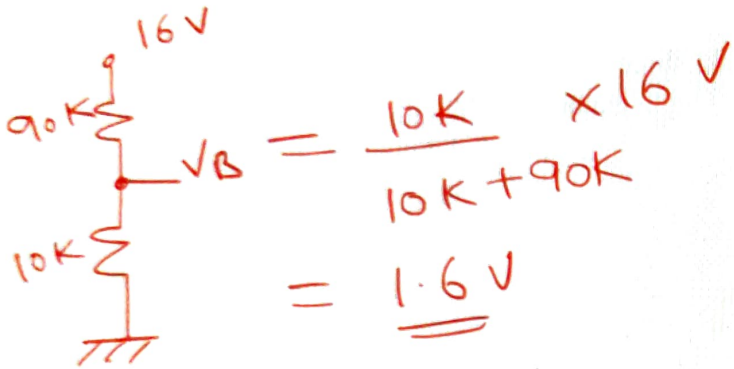
$$= 1.6\,V$$



Voltage divider configuration

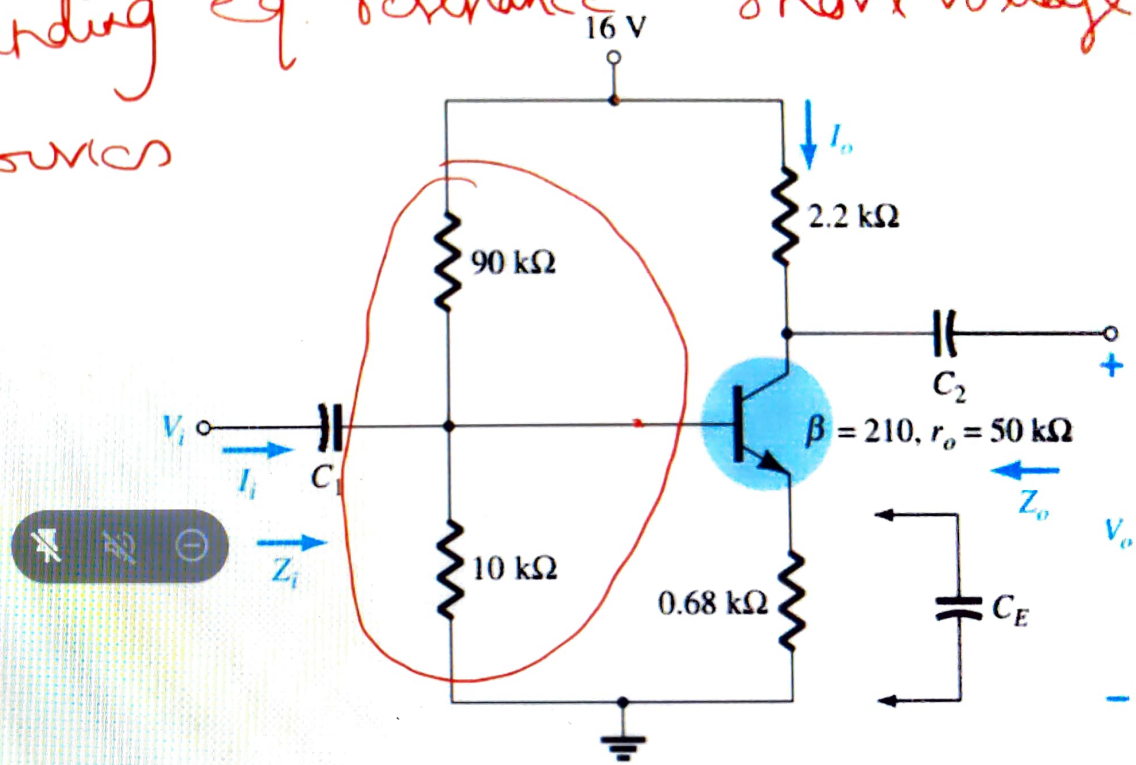
for feeding eq resistance source

short voltage



$$V_B = \frac{10K}{10K+90K} \times 16\,V$$

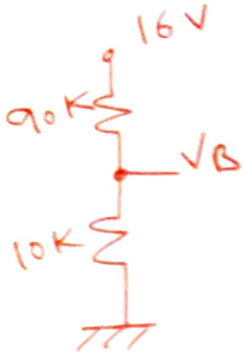
$$= 1.6\,V$$



$V_B = 1.6$

Voltage divider configuration

for finding eq resistance Short Voltage Source

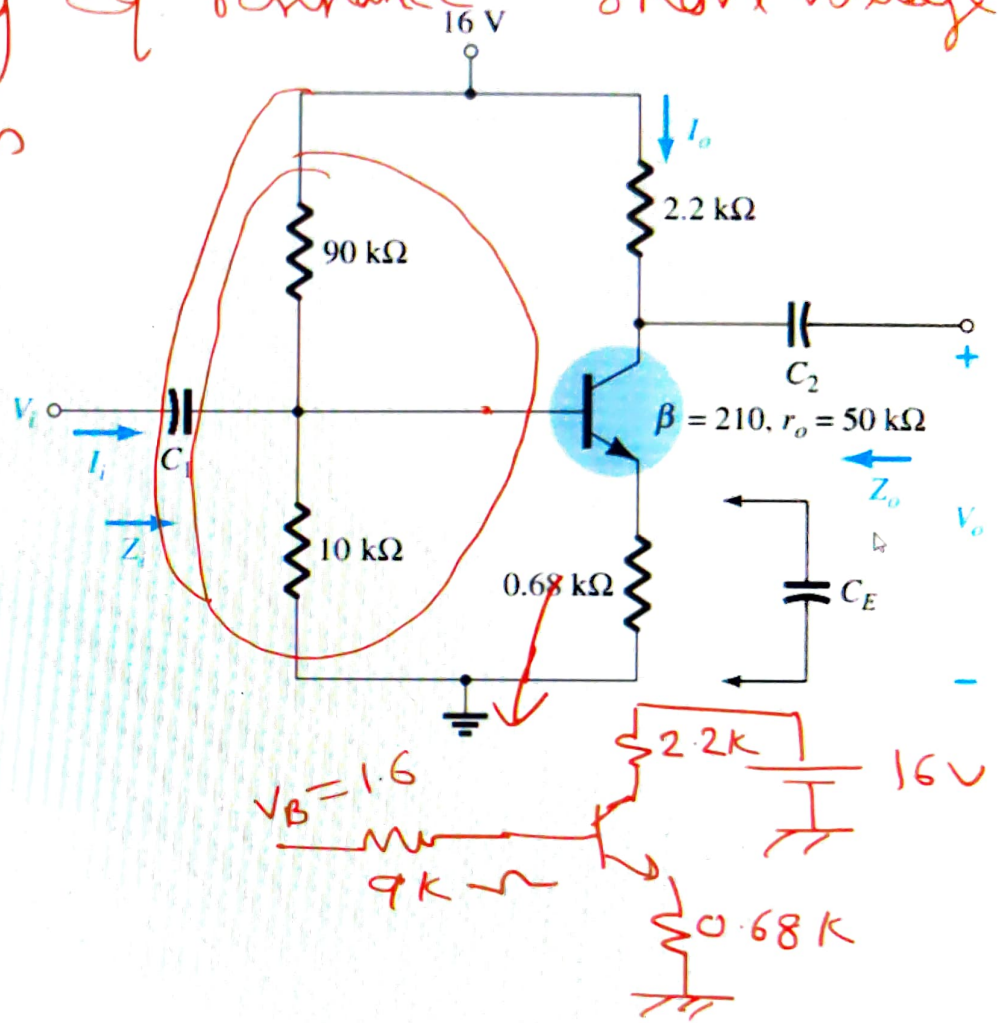


$$V_B = \frac{10K}{10K + 90K} \times 16\,V$$

$$= 1.6\,V$$

$$R_{eq} = \frac{90K \times 10K}{100K}$$

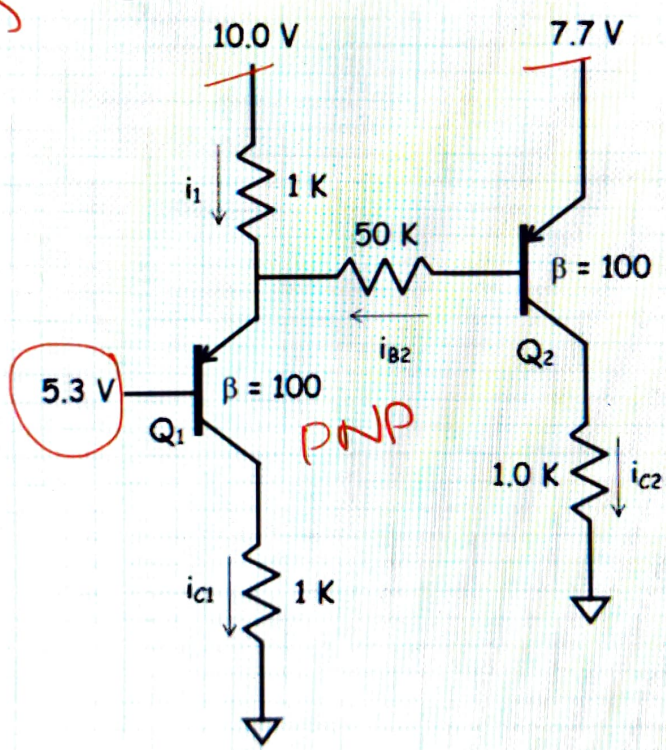
$$= 9K\Omega$$



Problem

- Find currents and voltages

multi-stage amplifier ckt



Problem

- Find currents and voltages

multi-stage amplifies