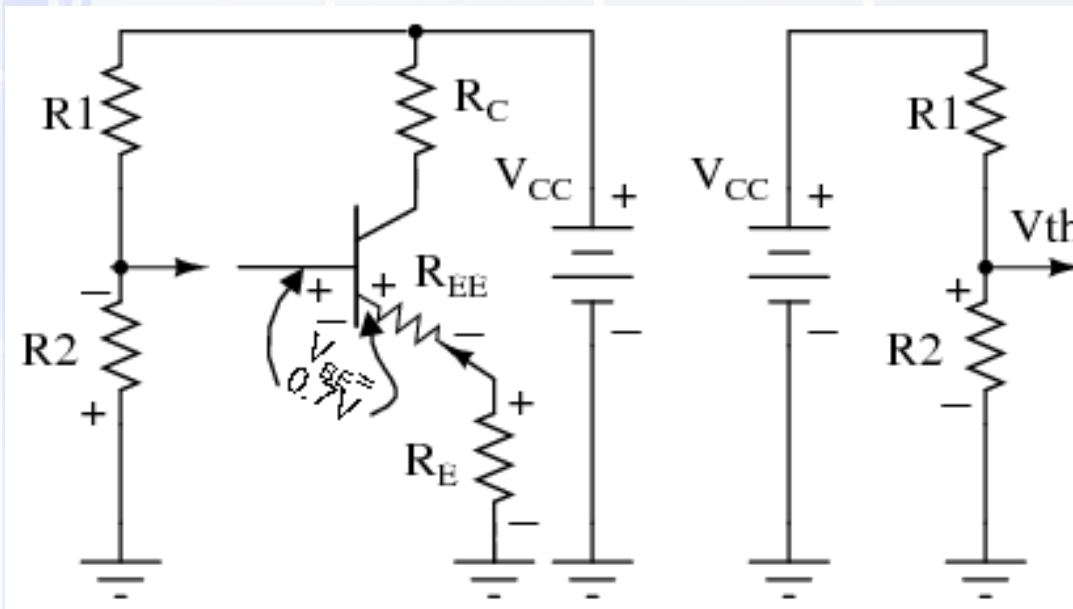


Bias pembagi tegangan



$$V_B = V_{CC} \frac{R_2}{R_1 + R_2}$$

$$V_E = I_E R_E$$

$$V_E = V_B - 0,7$$

$$I_E = V_E / R_E \approx I_C$$

$$\begin{aligned} V_{CE} &= V_C - V_E = V_{CC} - I_C R_C - I_E R_E \\ &= V_{CC} - I_C (R_C + R_E) \end{aligned}$$

$$I_{c(sat)} = \frac{V_{CC}}{R_C + R_E}$$

$$V_{CE(\text{cut off})} = V_{CC}$$

Contoh 1.

**Suatu rangkaian transistor dengan bias pembagi tegangan, $R_1 = 10 \text{ k}\Omega$, $R_2 = 2,2 \text{ k}\Omega$, $R_C = 3,6 \text{ k}\Omega$, $R_E = 1 \text{ k}\Omega$, $V_{CC} = 10 \text{ V}$.
Tentukan Q point.**



Jawab :

Diketahui

$$R_1 = 10 \text{ k}\Omega, R_2 = 2,2 \text{ k}\Omega, R_C = 3,6 \text{ k}\Omega,$$
$$R_E = 1 \text{ k}\Omega, V_{CC} = 10 \text{ V.}$$

Di tanya Q point.



$$V_B = V_{CC} \frac{R_2}{R_1 + R_2}$$

$$V_B = (2,2\text{k}\Omega/10\text{k}\Omega+2,2\text{k}\Omega)10\text{V} = 1,8 \text{ V}$$

$$V_E = V_B - 0,7 = 1,8 \text{ V} - 0,7 \text{ V} = 1,1 \text{ V}$$

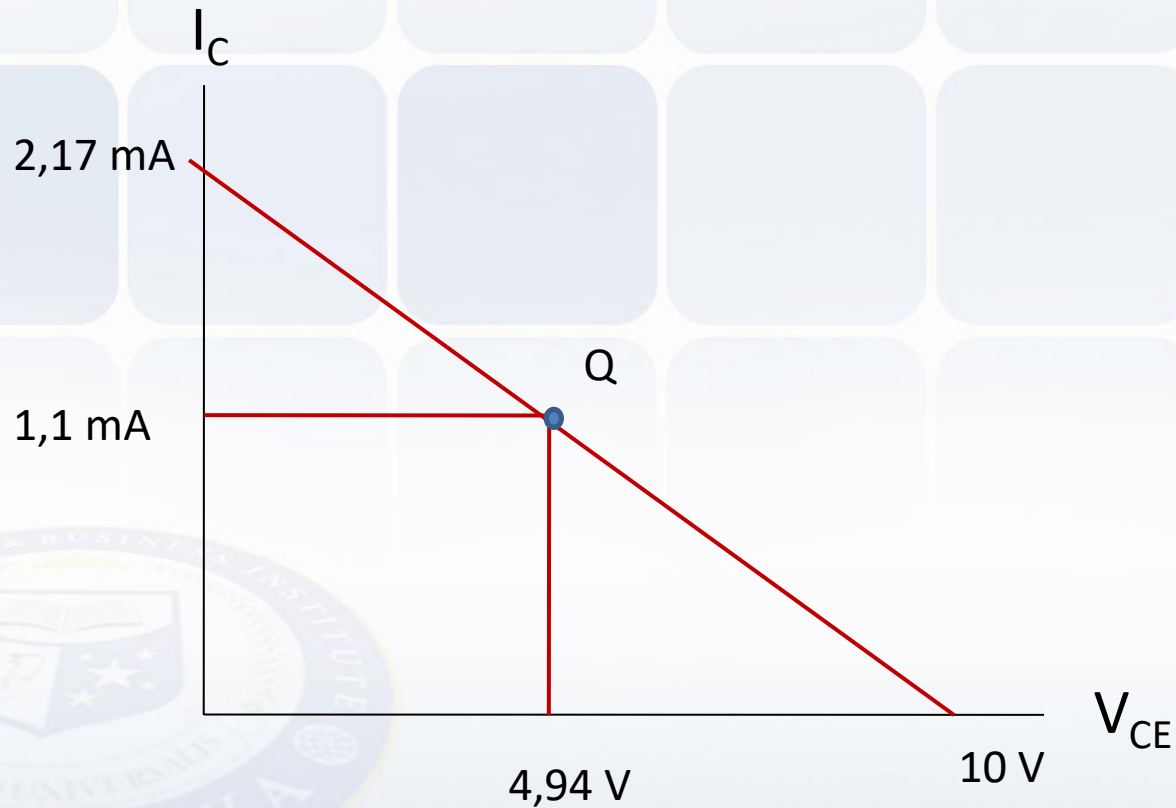
$$I_E = V_E / R_E = 1,1 \text{ V} / 1\text{k}\Omega = 1,1 \text{ mA}$$

$$V_{CE} = V_{CC} - I_C(R_C + R_E)$$

$$= 10 - 1,1 \text{ mA} (3,6\text{k}\Omega + 1\text{k}\Omega) = 4,94 \text{ V}$$

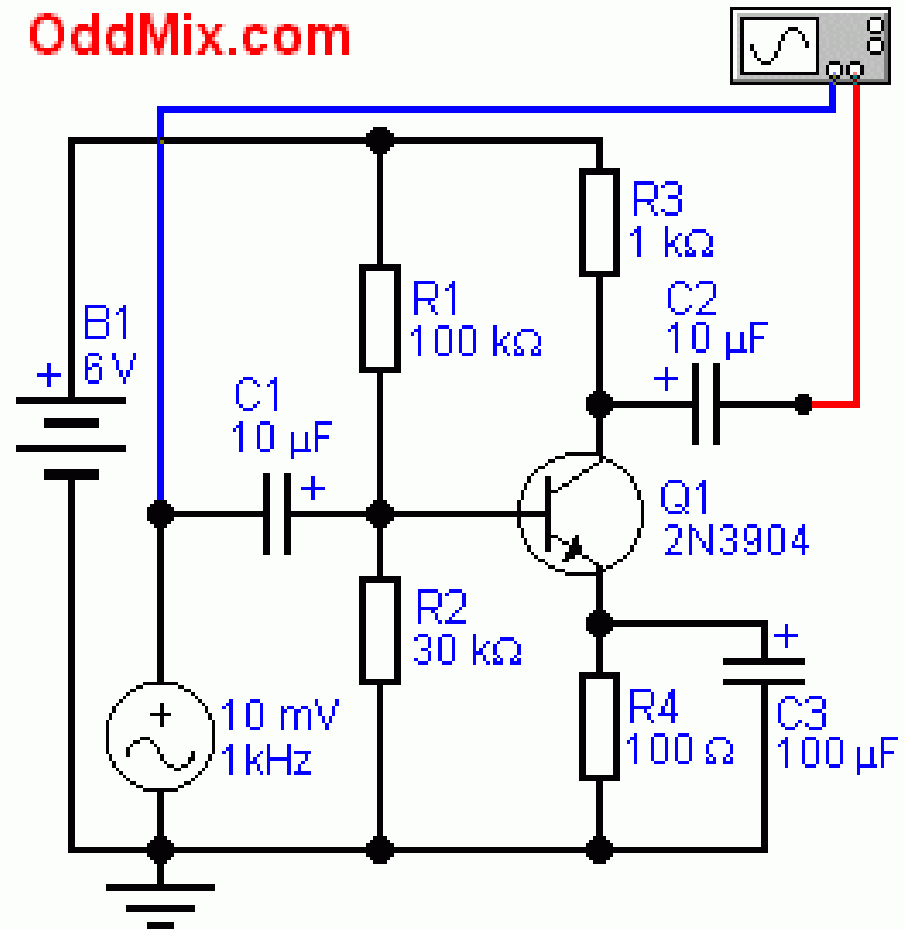
V_{CE} cut of = $V_{CC} = 10$ V.

I_C saturasi = $V_{CC}/R_C+R_E = 10/3,6\text{ k}\Omega+1\text{ k}\Omega = 2.17$ mA



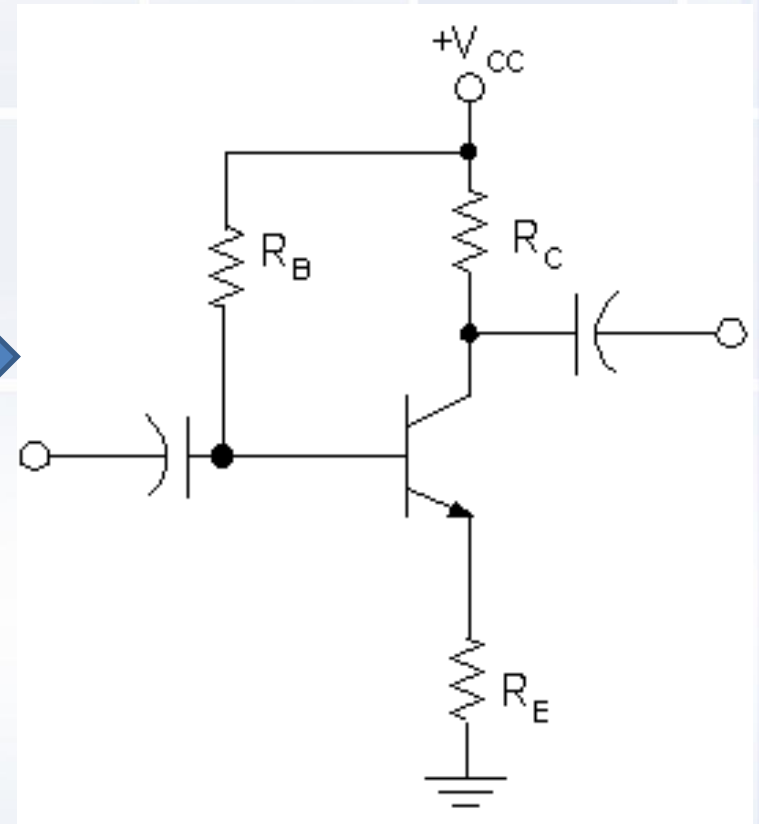
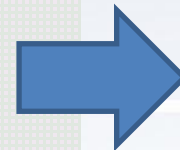
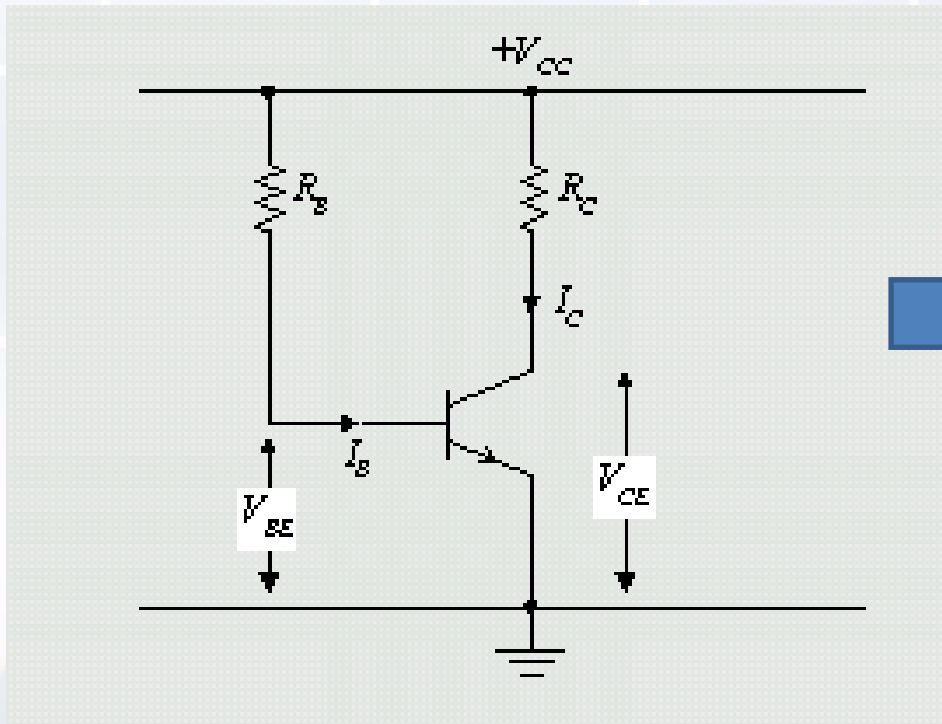
Contoh 2 :

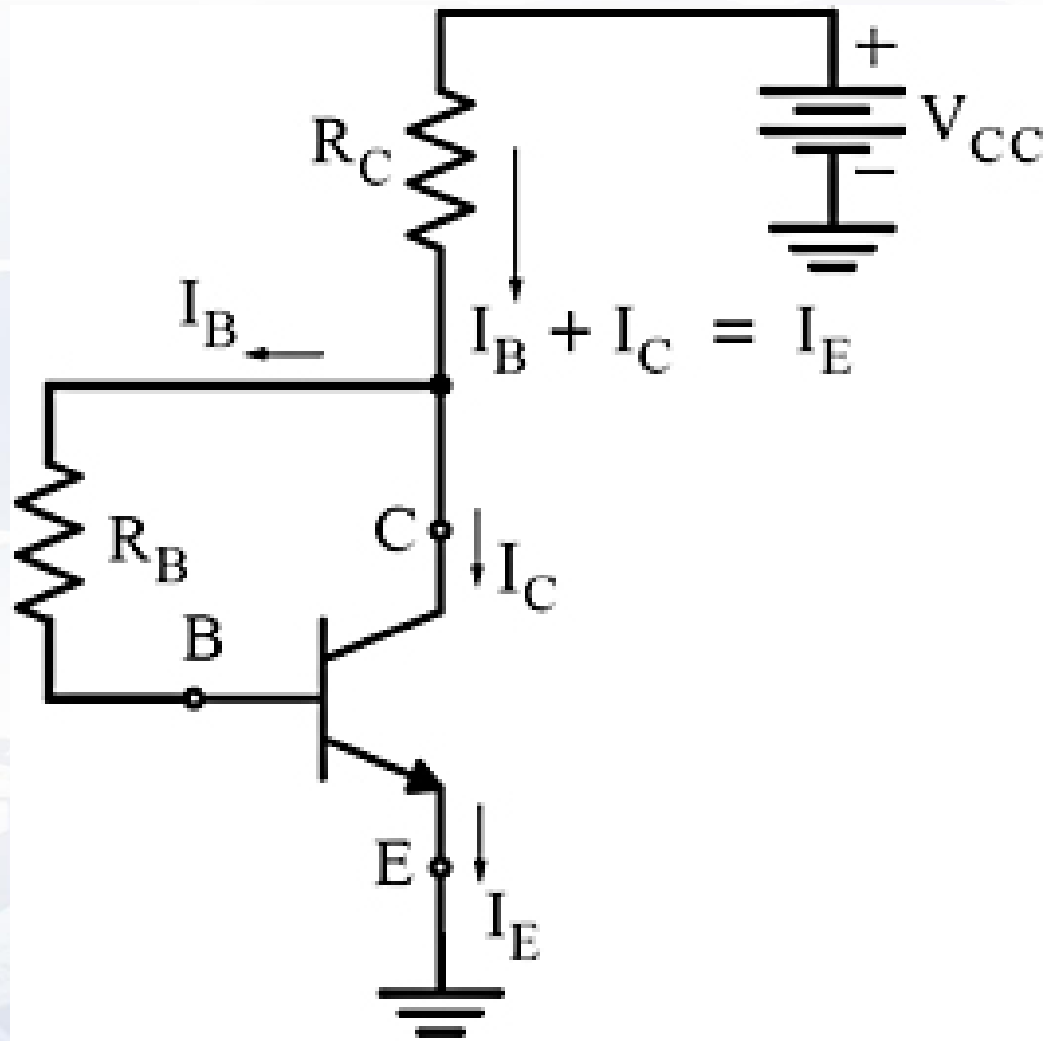
Diketahui :



Tentukan Q point

Bias lainnya





end

