

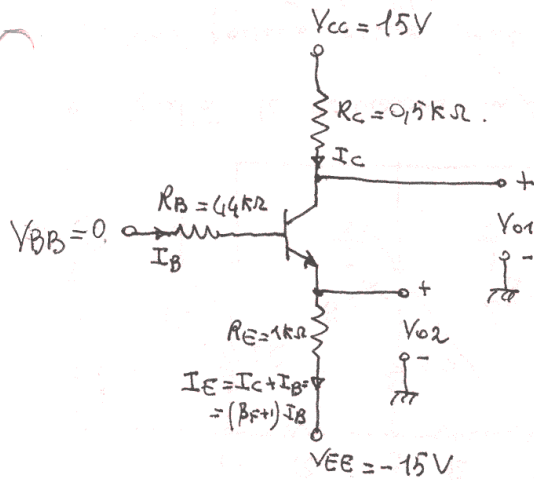
Es. 3-17

Il circuito mostrato utilizza un BJT

con $\beta_F = 100$.

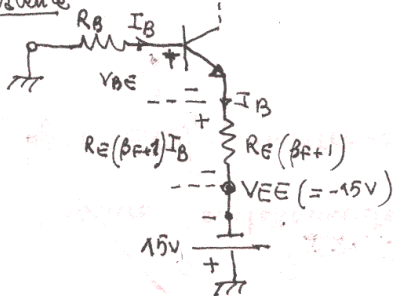
a) Determinare V_{O1} e V_{O2}

b) in quale R_C si ha $V_{O1} = 0$?



SOLUZIONE

1) c. equivalente



$$I_B = \frac{V_{EE} - V_{BE}}{R_E(\beta_F + 1) + R_B} = \frac{15 - 0,7}{1(100 + 1) + 44} \text{ mA} \approx 99 \mu\text{A}$$

$$I_C = \beta_F I_B = 100 \cdot 99 \mu\text{A} = 9,9 \text{ mA}$$

$$V_{O1} = V_{CC} - R_C I_C = 15 - 0,5 \cdot 9,9 = 10,05 \text{ V}$$

$$V_{O2} = R_E(\beta_F + 1) I_B + V_{EE} = R_E(I_C + I_B) + V_{EE} = 1(9,9 + 0,099) - 15 \approx -5 \text{ V}$$

b) $V_{O1} = V_{CC} - R_C I_C = 0$

$$R_C = \frac{V_{CC}}{I_C} = \frac{15 \text{ V}}{9,9 \text{ mA}} \approx 1,52 \text{ k}\Omega$$