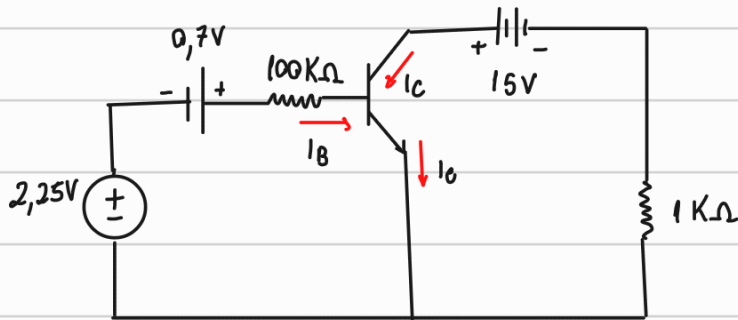


## Exercícios Transistores

Igor dos Reis Gomes

3.89. Determinar  $I_B$  e  $V_{CE}$ . Seja  $\beta = 100$  e  $V_{BE} = 0,7V$



$$2,25 + 0,7 - 100 \cdot 10^3 \cdot I_B - V_{BE} = 0$$

$$2,25 + \cancel{0,7} - 100 \cdot 10^3 \cdot I_B - \cancel{0,7} = 0$$

$$100 \cdot 10^3 I_B = 2,25$$

$$I_B = 0,0225 \cdot 10^{-3}$$

$$I_B = 2,25 \cdot 10^{-5} A //$$

$$I_C = \beta \cdot I_B$$

$$I_C = 100 \cdot 2,25 \cdot 10^{-5}$$

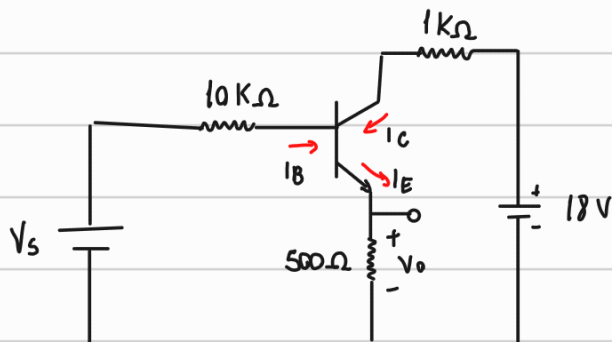
$$I_C = 2,25 \cdot 10^{-3} A$$

$$V_{CE} = 15 - 2,25 \cdot 10^{-3} \cdot 1000$$

$$V_{CE} = 15 - 2,25$$

$$V_{CE} = 12,75 V //$$

3.90. Calcule  $V_S$  para o transistor dado  $V_o = 4V$ ,  $\beta = 150$  e  $V_{BE} = 0,7V$



$$I_E = \frac{4}{500} = 8 \cdot 10^{-3} A$$

$$I_E = I_B + I_C$$

$$8 \cdot 10^{-3} = I_B + I_B \cdot \beta$$

$$8 \cdot 10^{-3} = 150 I_B + I_B$$

$$I_B = \frac{8 \cdot 10^{-3}}{151} = 5,3 \cdot 10^{-5} A$$

$$V_S - 10 \cdot 10^3 \cdot 5,3 \cdot 10^{-5} - V_{BE} - 4 = 0$$

$$V_S - 53 \cdot 10^{-2} - 0,7 - 4 = 0$$

$$V_S = 4,7 + 53 \cdot 10^{-2}$$

$$V_S = 4,7 + 0,53$$

$$V_S = 5,23 V //$$