

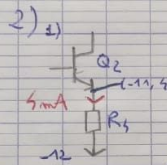
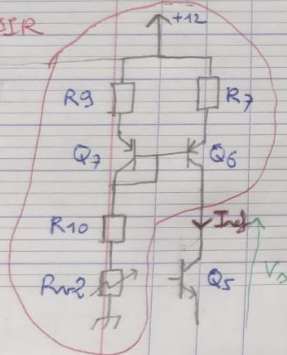
Compte Rendu BE Electronique (Séance 8)

5) $Z_{in\ ec} = r_{be\ eq} + R_6(\beta_{eq} + 1)$ car m raisonnement que 2.1-4)

3.1 - Analyse du schéma réel

1) Q_6 & Q_7 : forment un miroir de courant $\rightarrow I_1$ sur le schéma

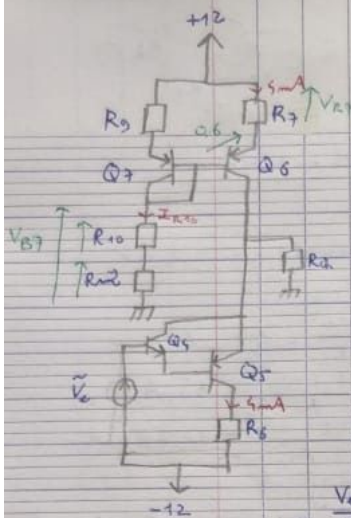
MIRROIR



$$R_5 = \frac{12 - 11,4}{5 \times 10^{-3}} = 120 \Omega = R_6$$

$$\Rightarrow R_7 = 150 \Omega$$

2) On a $R_9 = R_7$ car il s'agit d'un miroir de courant donc $R_9 = 150 \Omega$



$$V_{R7} = 150 \times 5 \times 10^{-3} = 0,6V$$

$$V_{B7} = V_{R10} + V_{Rv2} \text{ et } V_{B7} = 12 - V_{R7} - 0,6$$

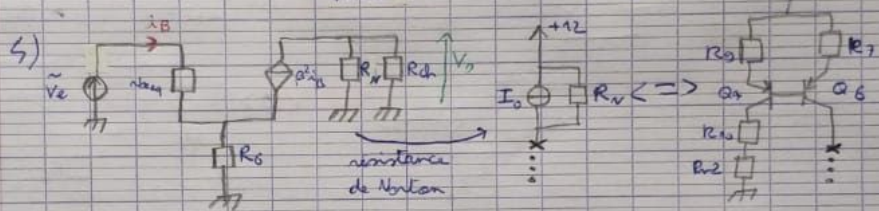
$$I_{10} = I_{C7} + I_{B6} + I_{B7} \approx I_{C7} = 5mA$$

$$\Rightarrow R_{10} + R_{v2} = \frac{12 - 0,6 - 0,6}{5 \times 10^{-3}} = 2700 \Omega$$

3) $R_v = \frac{v_o}{i_o} = r_{ce} \left(1 + \frac{\beta R_7}{R_7 + r_{be}} \right) + R_7 \parallel r_{be}$ d'après TP1 3.7.1.2

$$= \frac{V_{ce7}}{I_{C7}} \left(1 + \frac{\beta R_7}{R_7 + \frac{U_{TH}}{I_{B7}}} \right) + R_7 \parallel \frac{U_{TH}}{I_{B7}} \text{ avec } I_{B7} = \frac{I_{C7}}{\beta} = 5 \times 10^{-5} A$$

$$AN = \frac{50}{5 \times 10^{-3}} \times \left(1 + \frac{100 \times 150}{150 + \frac{25 \times 10^{-3}}{5 \times 10^{-5}}} \right) + \frac{150 \times \frac{25 \times 10^{-3}}{5 \times 10^{-5}}}{150 + \frac{25 \times 10^{-3}}{5 \times 10^{-5}}} \approx 254,56 k\Omega$$



$$V_o = \beta^2 i_o \times R_v \parallel R_{charge}$$

$$V_e = i_o \times r_{be\ eq} + i_o R_6(\beta^2 + 1)$$

$$\text{ainsi } A = \frac{V_o}{V_e} = \frac{\beta^2 \times R_v \parallel R_{charge}}{r_{be\ eq} + R_6(\beta^2 + 1)} = \frac{100^2 \times \frac{254,560 \times 10000}{254,560 + 10000}}{77000 + 150(100^2 + 1)} \approx 54,78$$