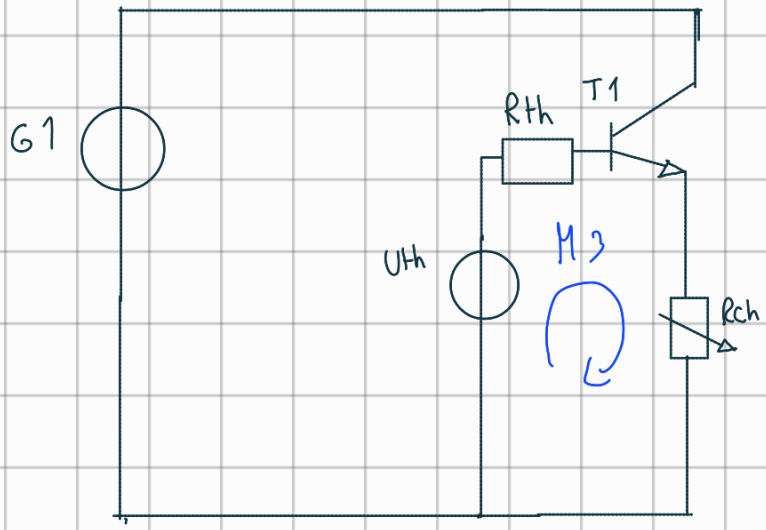
Schéma Equivalent Thevenin



$$A = \frac{R2}{R1+R2}$$

$$\begin{cases} V_{CC\,min} \cdot A - R1 \cdot A \cdot \dfrac{I_{out}}{\beta} = U_{out} + V_{BE} \\ V_{CC\,max} \cdot A - R1 \cdot A \cdot \dfrac{I_{out}}{\beta} = U_{out} + V_{BE} \end{cases}$$

$$\begin{cases} 12\,A - R1 \cdot A \cdot \dfrac{25\,mA}{160} = 4,75 + 0,7 \\ 13\,A - R1 \cdot A \cdot \dfrac{10\,mA}{160} = 5,25 + 0,7 \end{cases}$$

Même dénominateur

$$\begin{cases} \dfrac{1920 - R1 \cdot A \cdot 25\,mA}{160} = 5,45 \quad \Big| \cdot 160 \\ \dfrac{2080 - R1 \cdot A \cdot 10\,mA}{160} = 5,95 \quad \Big| \cdot 160 \end{cases}$$

$$\begin{cases} 1920 - R1 \cdot A \cdot 25\,mA = 872 \\ 2080 - R1 \cdot A \cdot 10\,mA = 952 \end{cases}$$

J'isole A

$$\begin{cases} A = \dfrac{872}{1920 - R1 \cdot 25 \cdot 10^{-3}} \\ A = \dfrac{952}{2080 - R1 \cdot 10^{-2}} \end{cases}$$

J'égalise mes deux Cas

$$\frac{872}{1920 - R1 \cdot 25 \cdot 10^{-3}} = \frac{952}{2080 - R1 \cdot 10^{-2}}$$

J'isole mon R1

$$872\,(2080 - R1 \cdot 10^{-2}) = 952\,(1920 - R1 \cdot 25 \cdot 10^{-3})$$

$$1813760 - 8{,}72\,R1 = 1827840 - 23{,}8\,R1$$

$$15{,}08\,R1 = 14080$$

$$R1 = \frac{14080}{15{,}08} = 933{,}69 \approx 933$$

R2 je reprend un des rapport (le plus simple)

$$A = \frac{952}{2080 - R1 \cdot 10^{-2}}$$

$$\frac{R2}{R1+R2} = \frac{952}{2080 - R1 \cdot 10^{-2}}$$

$$\frac{R2}{933,7+R2} = \frac{952}{2080 - 933,7 \cdot 10^{-2}}$$

$$\frac{R2}{933,7+R2} = 0,4596$$

$$R2 = 0,4596\,(933,7+R2)$$

$$R2 = 429,13 + 0,4596\,R2$$

$$0,5404\,R2 = 429,13$$

$$R2 = \frac{429,13}{0,5404} = 794,00 \approx 794\,\Omega$$