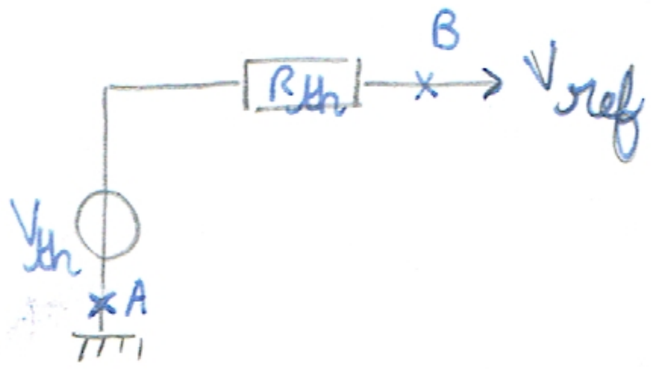
4/

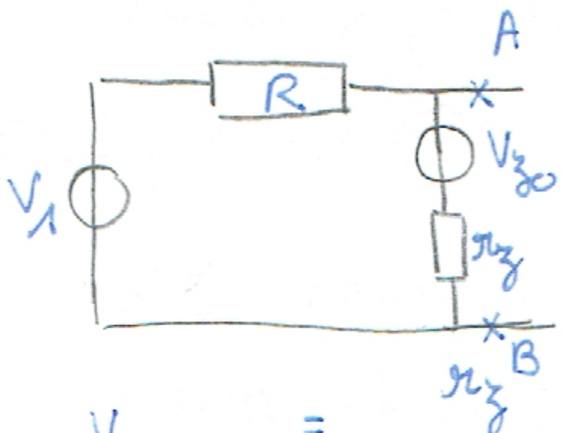


$R_{th} = r_z // R$

$= \frac{r_z R}{r_z + R} = \frac{1150 \times 35}{1180 + 35}$

$= 33,966\ \Omega \approx r_z$

car $r_z \ll R$.



= théorème de superposition.

$V_{th_1}(V_1) = \frac{r_z}{r_z + R} V_1$ $\quad V_{th_2}(V_{z0}) = \frac{R}{r_z + R} V_{z0}$

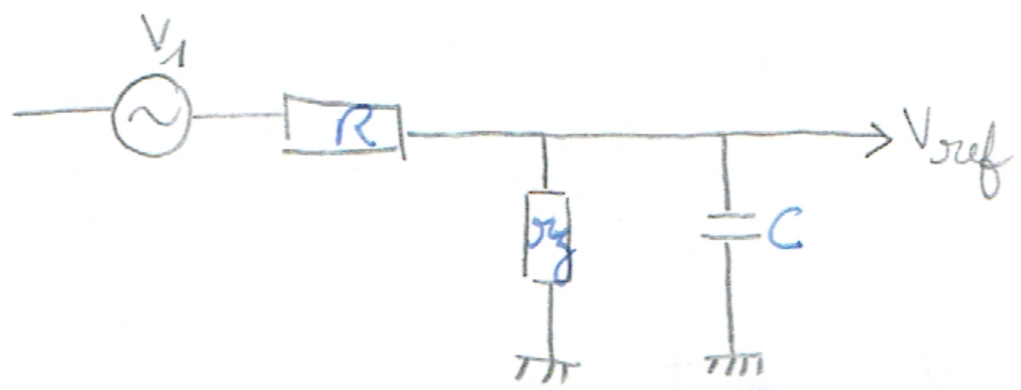
$V_{th} = V_{th_1} + V_{th_2} = \frac{r_z V_1}{r_z + R} + \frac{R V_{z0}}{r_z + R}$

$= \frac{r_z V_1 + R V_{z0}}{r_z + R} = 4,125\ V.$

5/ $\Delta V = R_{th} \Delta I_{th} = 35 \times 1.10^{-3} - 35 \times 0 = 35\ mV.$

donc $\frac{0,035}{5,1} = 0,068\ \%.$

6/



sans C, on a $V_{ref} = \frac{r_z}{R + r_z} V_1 = \frac{35}{1180 + 35} \times 200.10^{-3}$

$= 0,03 \times 200.10^{-3} = 5,9\ mV.$ OK.

↖ 3% < 5%

(pas besoin de la capa).

donc $A_V = 20 \log\left(\left|\frac{r_z}{R + r_z}\right|\right)$

$= 20 \log(0,03)$

$= -30,46.$