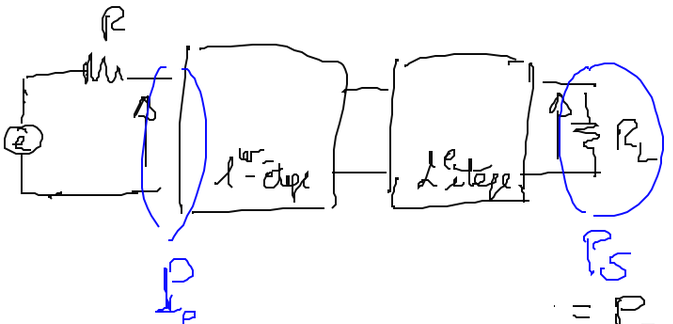
4.1

$$\begin{cases} V_3 = -g V_2 \dfrac{R_L}{R_L + R_S} \\ V_2 = -g V_1 \dfrac{R_e}{R_e + R_S} \end{cases}$$



P_1 : P transmise par le généré

$$P_S = \frac{V_3^2}{R_L} \qquad P_e = \frac{V_1^2}{R_e}$$

$$G_p = \frac{P_S}{P_e} = \frac{V_3^2}{R_L} \cdot \frac{R_e}{V_1^2} = \frac{R_e}{R_L} \left(\frac{V_3}{V_1}\right)^2$$

donc $P_3 = \dfrac{V_3^2}{R_L}$

$P_1 = \dfrac{V_1^2}{R_e}$

$\Rightarrow G_p = \dfrac{P_3}{P_1}$

et $V_1 = e \cdot \dfrac{R_e}{R_e + R}$

$$G_p = K \frac{R_e^3}{(R_e + R_S)^2}$$

si $R_e \nearrow$ $G_p \nearrow$