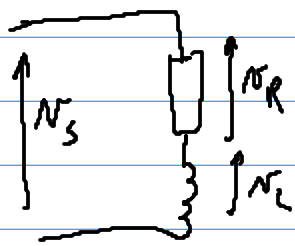


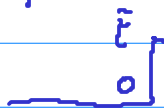
$\mathcal{I}_c$  0 à  $T$ :  $N_s = N_c$



$$N_R(t) = R \cdot i(t) \rightarrow V_R(p) = R \cdot I(p)$$

$$N_L(t) = L \cdot \frac{di(t)}{dt} \rightarrow V_L(p) = L \{ p \cdot I(p) - I_0 \}$$

$$\Rightarrow V_s(p) = R \cdot I + L \cdot p \cdot I - L \cdot I_0 = V_e(p)$$

Forme de  $V_e(p)$   : c'est un voltage

$$V_e(p) = \frac{\bar{E}}{p}$$

$$\Rightarrow \frac{\bar{E}}{p} = R \cdot I + L \cdot p \cdot I - L \cdot I_0 \text{ de } 0 \text{ à } T$$

$$I = \frac{\frac{\bar{E}}{p} + L \cdot I_0}{R + Lp} = \frac{\frac{E}{R} \cdot \frac{1}{p} + \mathcal{G} \cdot I_0}{1 + \mathcal{G} \cdot p}$$

$$\text{avec } \mathcal{G} = \frac{L}{R}$$

$$I = \frac{E/R}{1 + \mathcal{G} \cdot p} \cdot \frac{1}{p} + \frac{\mathcal{G} \cdot I_0}{1 + \mathcal{G} \cdot p}$$

$$\hookrightarrow \frac{E/R}{1 + \mathcal{G} \cdot p} \cdot \frac{1}{p} = \frac{A}{p} + \frac{B}{1 + \mathcal{G} \cdot p}$$

$$= A(1 + \mathcal{G} \cdot p) + B \cdot p$$

$$= A + (A \cdot \mathcal{G} + B) \cdot p$$

Donc  $A = E/R \neq I_0$

$$A.Z + B = 0 \rightarrow B = -A.Z = -\frac{E}{R} \cdot \frac{L}{R} = -\frac{E.L}{R^2}$$

$$I = \frac{E}{R} \cdot \frac{1}{p} - \frac{EL/R^2}{1+Z.p} + \frac{Z \cdot I_0}{1+Z.p}$$

$$\frac{1}{p+a} \xrightarrow{\mathcal{L}^{-1}} e^{-at}$$

$$\frac{A}{p} \xrightarrow{\mathcal{L}^{-1}} A$$

$$I = \frac{E}{R} \cdot \frac{1}{p} - \frac{\frac{E.L}{R^2} \cdot \frac{R}{L}}{1/Z + p} + \frac{I_0}{1/Z + p}$$

$$I = \frac{E}{R} \cdot \frac{1}{p} - \frac{\frac{E}{R}}{1/Z + p} + \frac{I_0}{1/Z + p}$$

$$i(t) = \frac{E}{R} - \frac{E}{R} \cdot e^{-t/\tau} + I_0 \cdot e^{-t/\tau}$$

$$i(t) = \frac{E}{R} (1 - e^{-t/\tau}) + I_0 \cdot e^{-t/\tau}$$