

Résolution de l'exercice 7 - chap. 3

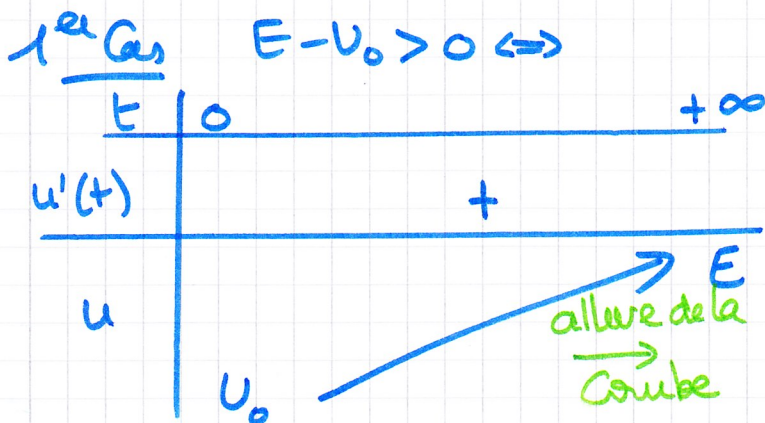
① $t \mapsto u(t) = (U_0 - E) \cdot e^{-t/RC} + E \quad (U_0 \neq E)$

$t \geq 0.$

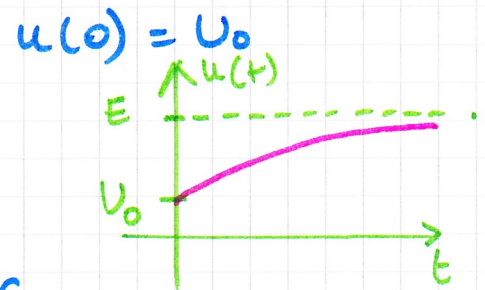
$$u'(t) = -\frac{1}{RC} (U_0 - E) e^{-t/RC}$$

$$u'(t) = \underbrace{\frac{1}{RC}}_{>0} (E - U_0) \underbrace{e^{-t/RC}}_{>0}$$

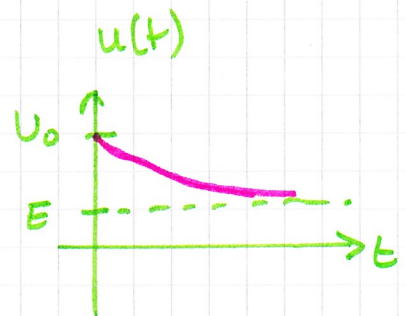
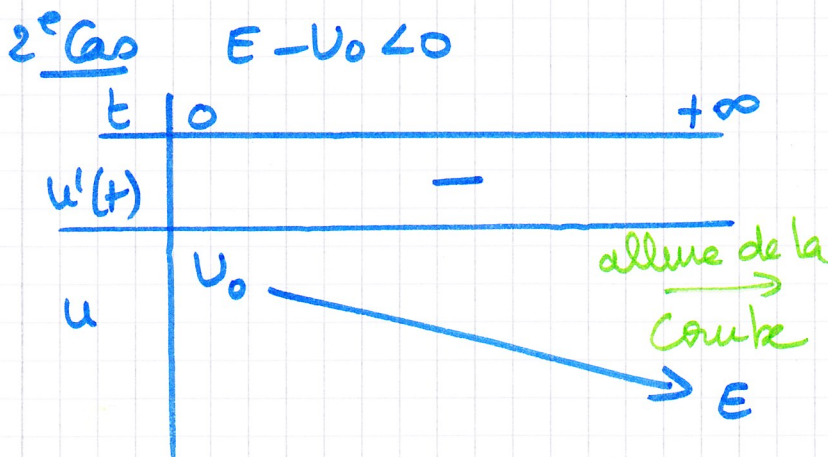
est du signe de $E - U_0$



$$u(0) = (U_0 - E) \times e^0 + E = U_0 - E + E$$



$$\lim_{t \rightarrow +\infty} u(t) = \lim_{t \rightarrow +\infty} \underbrace{(U_0 - E) e^{-t/RC}}_0 + E = E \quad (RC > 0)$$



② Equation de la tangente à C_u en 0:

$$y = u(0) + (t - 0) \cdot u'(0)$$

$$y = U_0 + t \cdot \frac{E - U_0}{RC}$$