c) $i_L = i_1 - i_2$

$4(1) - 9(2)$

$0 = 36 i_L + 13 L \frac{di_L}{dt}$

$L = \frac{1}{2} H$

$i_L = i_p + i_h$

$i_p = 0 \qquad i_h = A e^{-t/\tau}$

$0 = 36 A e^{-t/\tau} - \frac{13}{2}\left(-\frac{1}{\tau}\right) A e^{-t/\tau}$

$\frac{1}{\tau} = \frac{72}{13}$

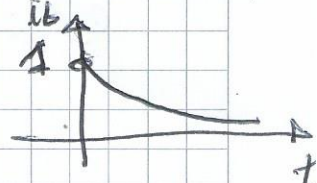
$i_L = A e^{-\frac{t}{\tau}}$

$i_L(0) = I_L = 1\,A$

a $t=0$ la corriente en L no cambia instantaneamente pues requeriría un $\frac{di}{dt} \to +\infty$.

L : Inercia al cambio de corriente

$\therefore \quad i_L = e^{-\frac{72}{13}t}$ Ampere



d) $U_m = \frac{L}{2} i_L^2 \qquad \frac{dU_m}{dt} = L\, i_L \frac{di_L}{dt} = \frac{1}{2} e^{-\frac{144}{13}t}\left(-\frac{72}{13}\right)$

$P_{Joule} = i_L^2 \cdot Req = i_L^2 * \frac{9*4}{9+4} = e^{-\frac{144}{13}t} \frac{*36}{13}$ //

húsares