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Interro
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① $0 < t < \frac{T}{2}$: $v = E = Ri + L \frac{di}{dt}$

$$\frac{E}{R} = i + \frac{L}{R} \frac{di}{dt}$$

$$i + \frac{L}{R} \frac{di}{dt} = 0 \Rightarrow \frac{di}{dt} = -\frac{1}{L/R} i$$

$$\frac{di}{i} = -\frac{1}{L/R} dt \rightarrow \ln i = -\frac{1}{L/R} t + c$$

$$i = A e^{-t/\tau} \quad \tau = \frac{L}{R}$$

$$i = \frac{E}{R} + A e^{-t/\tau}$$

$$i(0) = -I_M = \frac{E}{R} + A \Rightarrow A = -I_M - \frac{E}{R}$$

$$i(t) = \frac{E}{R} - \left(\frac{E}{R} + I_M \right) e^{-t/\tau}$$

$\frac{L}{R}$

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$$\frac{T}{2} < t < T: u = -E = R i' + L \frac{di}{dt}$$

$$i = -\frac{E}{R} + B e^{-(t - \frac{T}{2})/\tau}$$

$$i(\frac{T}{2}) = I_M = -\frac{E}{R} + B \Rightarrow B = \frac{E}{R} + I_M$$

$$i(t) = -\frac{E}{R} + \left(\frac{E}{R} + I_M\right) e^{-(t - \frac{T}{2})/\tau}$$

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2): $\tau = \frac{L}{R} \gg T \Rightarrow E = L \frac{di}{dt}$

$$di = \frac{E}{L} dt \Rightarrow i = \frac{E}{L} t + C$$

$$i(0) = -I_M = \frac{E}{L}(0) + C$$

$$i(t) = \frac{E}{L} t - I_M \quad (0 < t < \frac{T}{2})$$

$i(t) = ?$

$$-E = L \frac{di}{dt} \quad (\frac{T}{2} < t < T)$$

$$i = \frac{E}{L} (t - \frac{T}{2}) + D$$

$$i(\frac{T}{2}) = I_M = D$$

$$i(t) = I_M - \frac{E}{L} (t - \frac{T}{2})$$

$$i(t) = I_M = I_M - \frac{E}{L} \left(T - \frac{T}{2} \right)$$

$$I_M = \frac{E}{L} \cdot \frac{T}{2}$$

$$I_M = \frac{E T}{4}$$

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