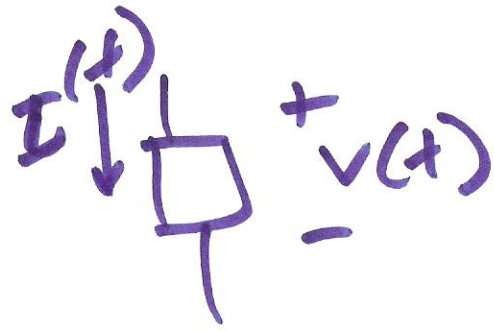


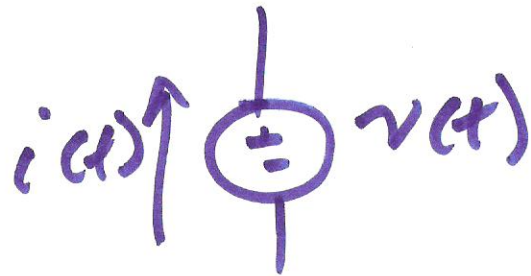
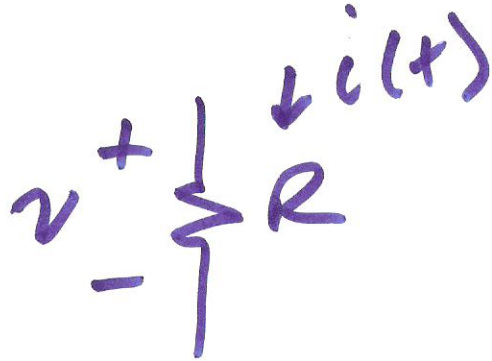
ECE 5/472 power Electronics



Instantaneous power,  $p(t)$

$$p(t) = v(t) \cdot i(t)$$

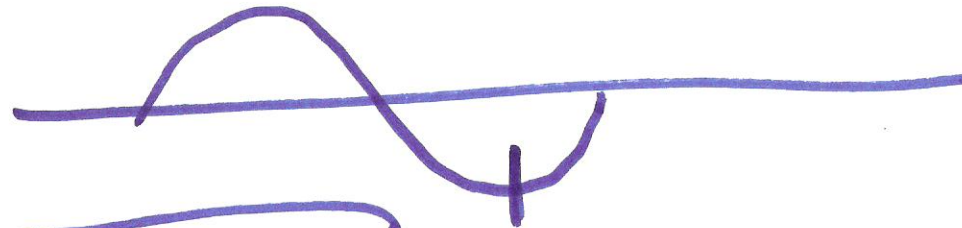
$$w = \int_{t_1}^{t_2} p(t) \cdot dt$$



# Average Power, P

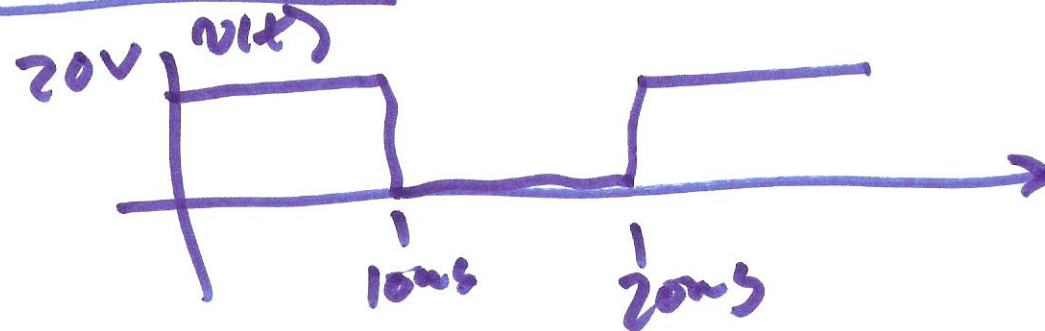
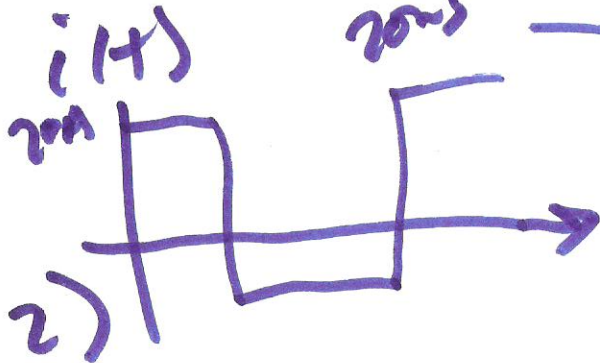
$$P = \frac{1}{T} \int_{t_0}^{t_0+T} p(t) \cdot dt = \frac{1}{T} \int_{t_0}^{t_0+T} v(t) \cdot i(t) dt$$

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Ex. 2-1



$$P = \frac{W}{T}$$

Example  
2-1



# Inductors

$$\frac{+v(t)}{L} = \frac{di(t)}{dt}$$

$$v(t) = L \cdot \frac{di}{dt}$$

$$w = \int v(t) \cdot i(t) \cdot dt$$

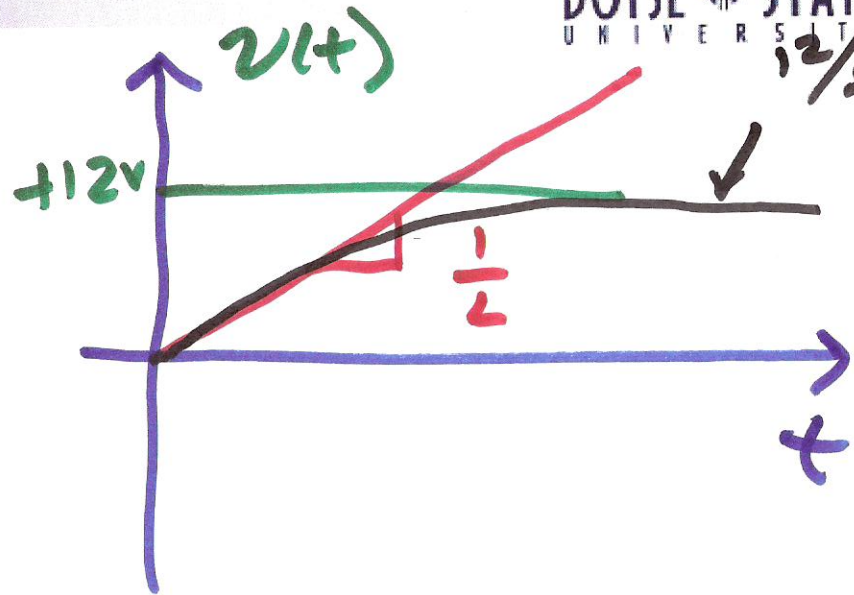
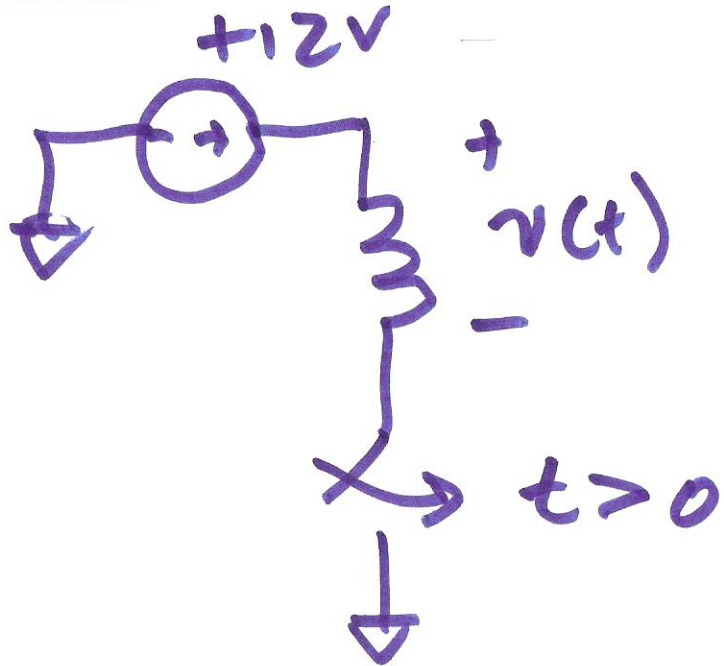
$$dt = \frac{L \cdot di}{v(t)}$$

$$w = \int_0^I L i(t) \cdot di(t)$$

$$w = \frac{1}{2} LI^2$$

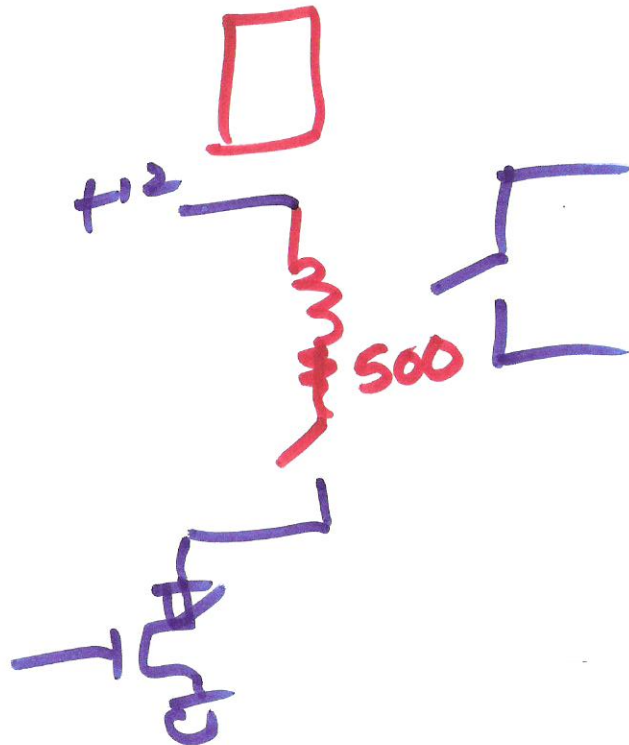
3)

12/30

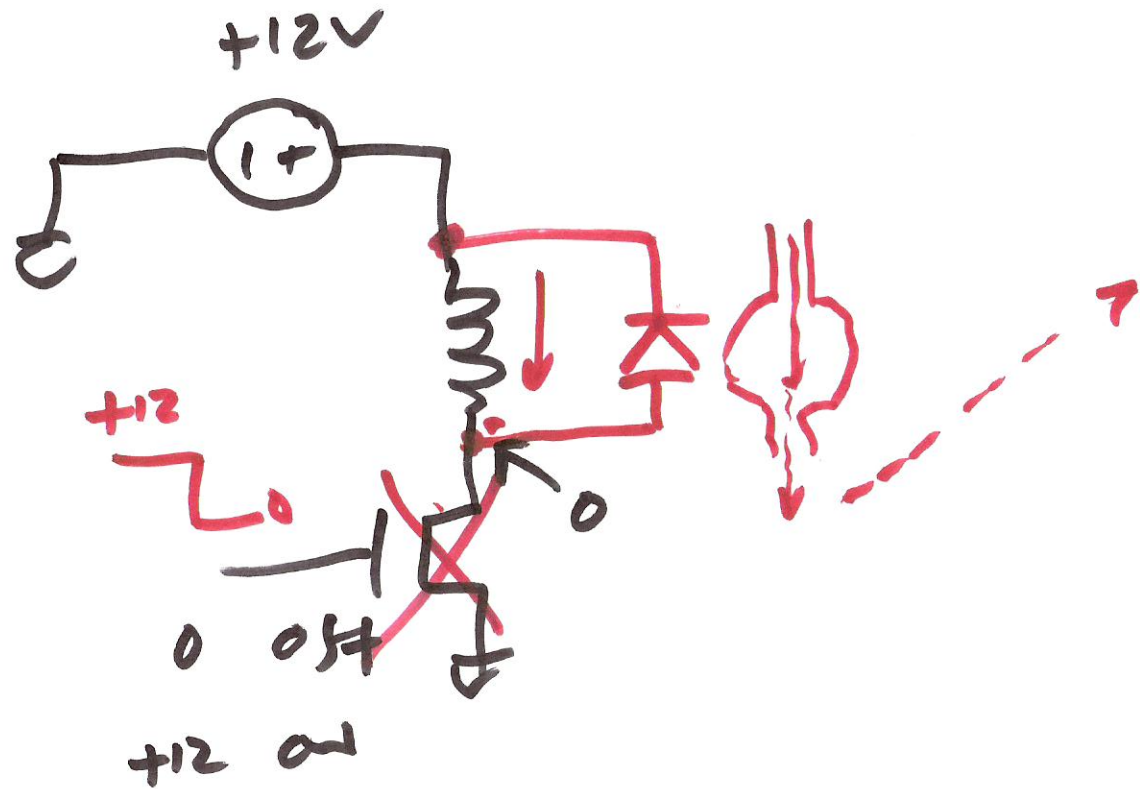
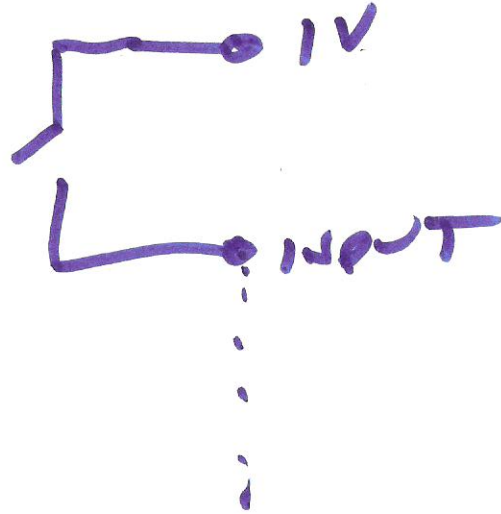
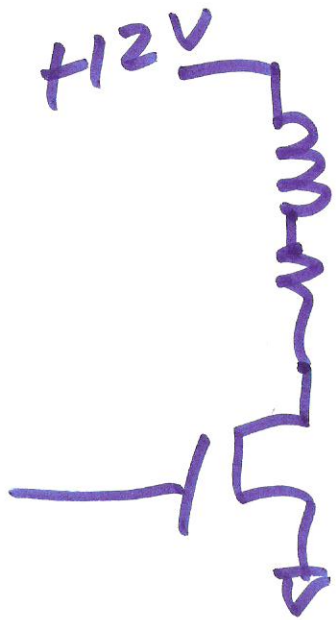


$$v(t) = L \cdot \frac{di(t)}{dt}$$

$$i(t) = \frac{1}{L} \int_0^T v(t) \cdot dt$$



4)



5)