i	(du
J	1	41

HW7

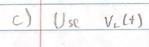
	1100 C	o ar	
a)	KVL: Ri(t) + V_(t) = 0		
	Ri(t) + L di = 0		
	$\frac{L \frac{di}{dt} = -Ri(t)}{\frac{i}{i(t)} di = -\frac{R}{L} dt}$	Separatrum of Variables	
	$\frac{1}{1(1)}d1 = -\frac{R}{L}dt$		
	$\int_{i(q)}^{(q)} \frac{1}{I(q)} di = -\frac{R}{L} \int_{0}^{d} dL$		
	$\left[\left(n\left(i\left(t\right)\right)\right]_{i\left(0\right)}^{r\left(t\right)}=-\frac{R}{L}\left[+\right]_{o}^{+}$		
	(n (i(+)) - ln(i(0)) = -R +		
	$\left(n\left(\frac{i(t)}{i(0)}\right) = -\frac{R}{L}\right)$		
	ilt) - Et	在一种种学习的技术。	
	7(0)		
	ī(+) = ī(0) · e - E+		



b)
$$i(t) = i(0) \cdot e^{-Rt}$$
 (Find $i(0)$)

Inductor: $i(0^-) = i(0^+)$

Current through and actor: $\frac{V_S}{R}$
 $i(0) = \frac{V_S}{R} \cdot e^{-Rt}$ (V=IR)



Use $V_L(t) = L \frac{di(t)}{dt}$ $= L \cdot \frac{d}{dt} \left(\frac{V_S}{R} \cdot e^{-\frac{R}{L}t} \right)$ $= L \cdot \frac{V_S}{R} \cdot \left(-\frac{R}{L} \right) e^{-\frac{R}{L}t}$ $= -V_S e^{-\frac{R}{L}t}$

