Ben Ridenhour HW 12 26, 28, 30, 31, 33, 35

9-26. $R=10$ $L=2$ $C=.5$ $i(t)=10\sin(240t)$

$\therefore v(t)=10(10\sin(240t))+2(2400\cos(240t))+2\int_0^t 10\sin(240t)\,dt$

$v(t)=100\sin(240t)+4800\cos(240t)-\frac{1}{12}\cos(240)$ V

9-28. $v_{in}=10e^{-10t}$ and $v_{in}=-.1\frac{dV_o}{dt}$

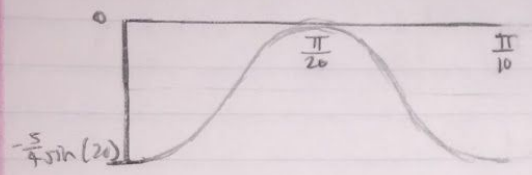
$\int v_{in}=-.1\int -100e^{-10t}\,dt$

$V_{in}=-.1(10e^{-10t})$ V $\therefore$ $V_o=10e^{-10t}$ V

9-30. $V_{in}=5\cos(20t)$

$V_o=-(2(5\cos(20t))+5\int_0^t 5\cos(20t)\,dt)$

$V_o=-10\cos(20t)-\frac{5}{4}\sin(20)$

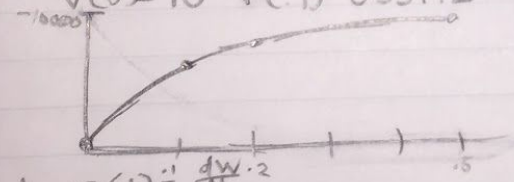


9-31. $V_{oi}=10$ V $C=.0001$ $i(t)=C\frac{dV_o}{dt}$ $i(t)=10e^{-10t}$

a. $\int i(t)=.0001\int 100000e^{-10t}$

$i(t)=.0001(-10000e^{-10t})$ $\therefore$ $V_o=-10000e^{-10t}+10010$

$v(0)=10$ $v(.1)=6331.2$ $v(.2)=8656.6$ $v(.5)=9942.6$

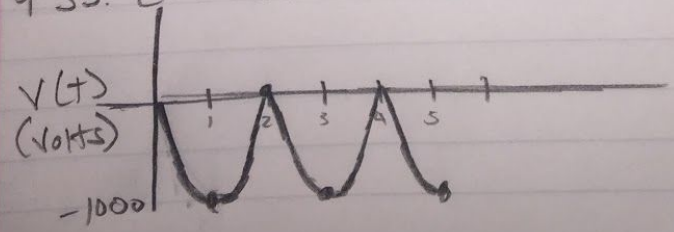


b. $p(t)=\frac{dw}{dt}$

$\int p(t)=\int .2e^{-20t}$

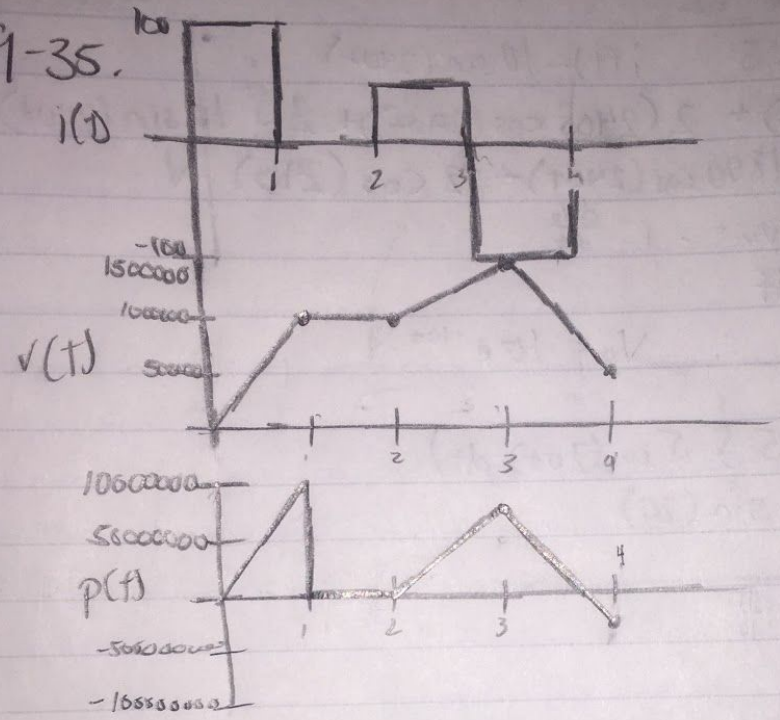
$p(t)=-.01e^{-20t}$ $\therefore$ $w(t)=-.01e^{-20t}+.015$

9-33. $C=.0005$ $i(t)=C\frac{dv}{dt}$ $i(t)=$



9-35.

C = .0001


100
i(t)
1
2
3
4
-100
1500000
v(t)
1
2
3
4
10600000
5000000
p(t)
1
2
3
4
-5060000
-10888888