Exercises

6.8 The voltage across a 12-μF capacitor is shown in Fig. P6.8. Compute the waveform for the current in the capacitor.

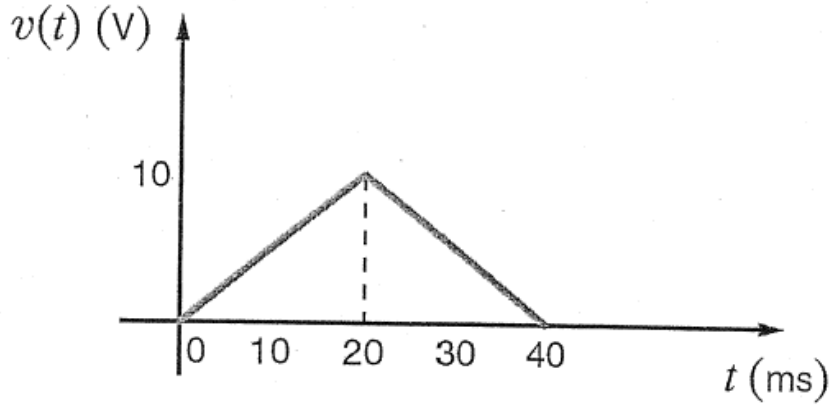


Figure P6.8

6.10 The voltage across a 50-μF capacitor is shown in Fig. P6.10. Compute the waveform for the current in the capacitor.

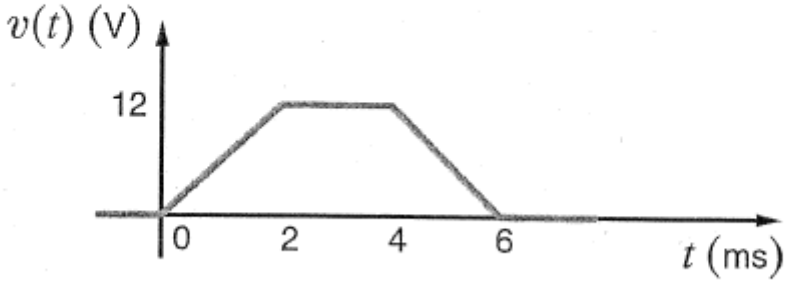


Figure P6.10

6.17 The waveform for the current in a 50-μF capacitor is shown in Fig. P6.17. Determine the waveform for the capacitor voltage. PSV

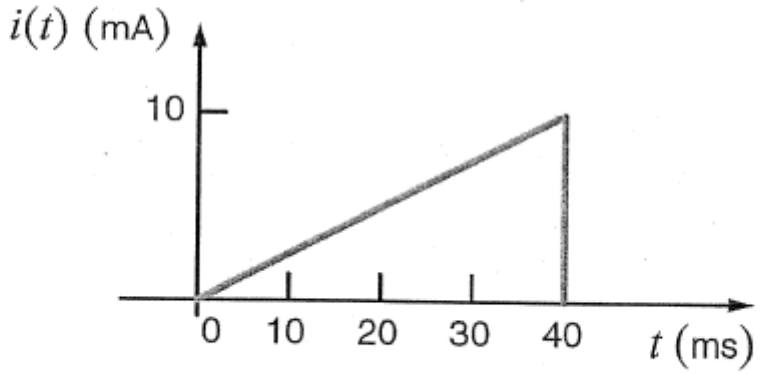


Figure P6.17

6.28 The current in a 50-mH inductor is shown in Fig. P6.28. Find the voltage across the inductor. PSV

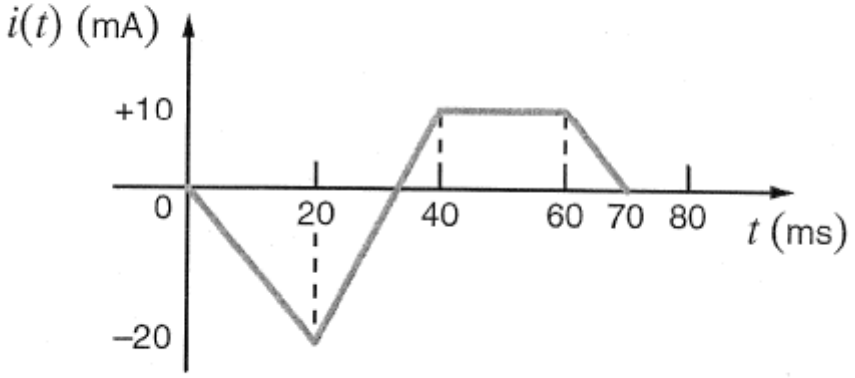


Figure P6.28

6.51 Select the value of C to produce the desired total capacitance of $C_T = 1\ \mu F$ in the circuit in Fig. P6.51.

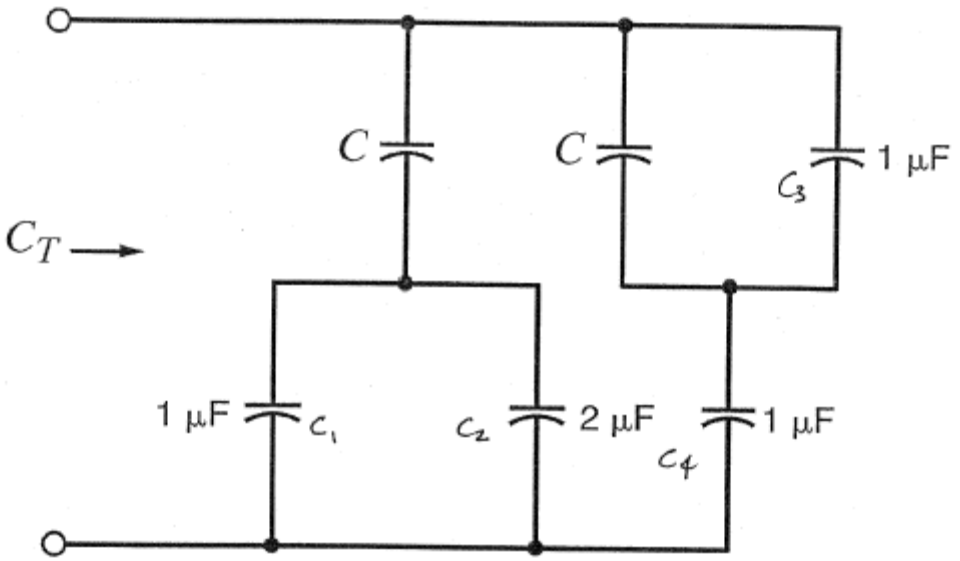


Figure P6.51

6.52 Find C_T in the network in Fig. P6.52 if (a) the switch is open and (b) the switch is closed.

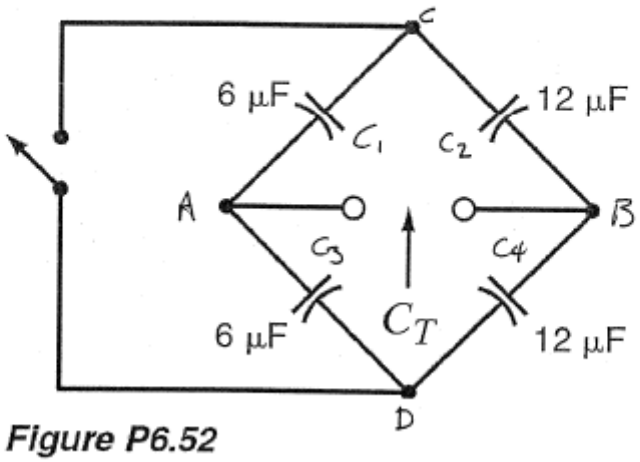


Figure P6.52

6.66 Determine the inductance at terminals A-B in the network in Fig. P6.66. PSV

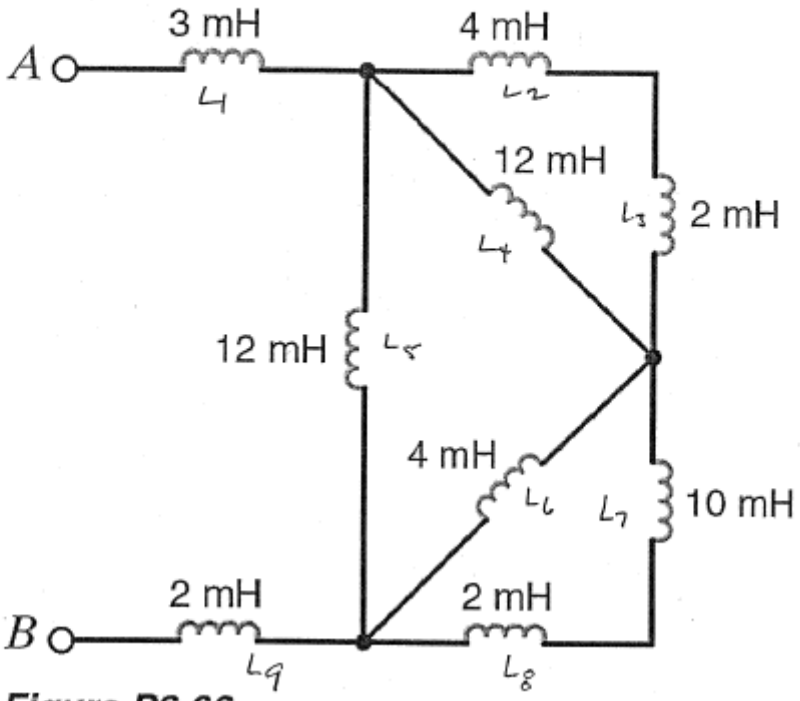


Figure P6.66

6.67 Determine the inductance at terminals A-B in the network in Fig P6.67. CS

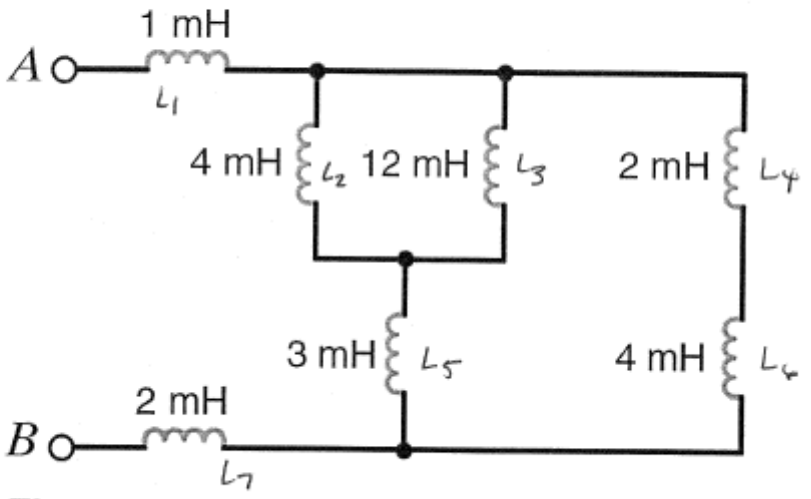


Figure P6.67

7.6 Use the differential equation approach to find $v_o(t)$ for $t > 0$ in the circuit in Fig. P7.6 and plot the response including the time interval just prior to opening the switch. CS

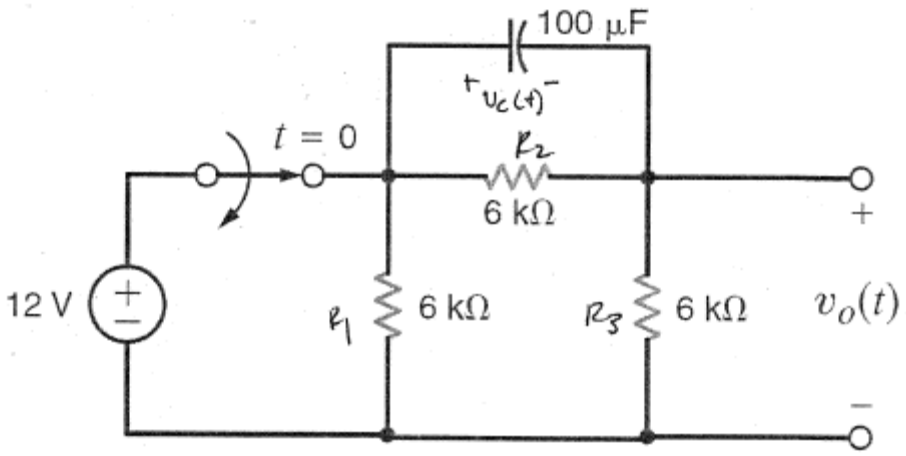
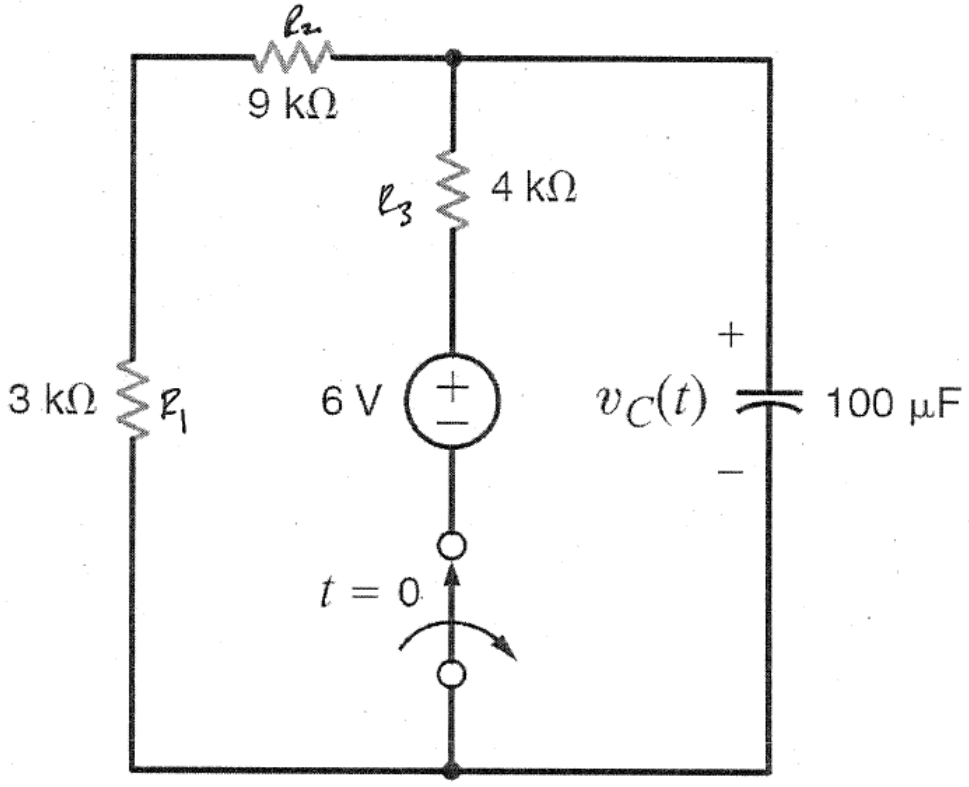
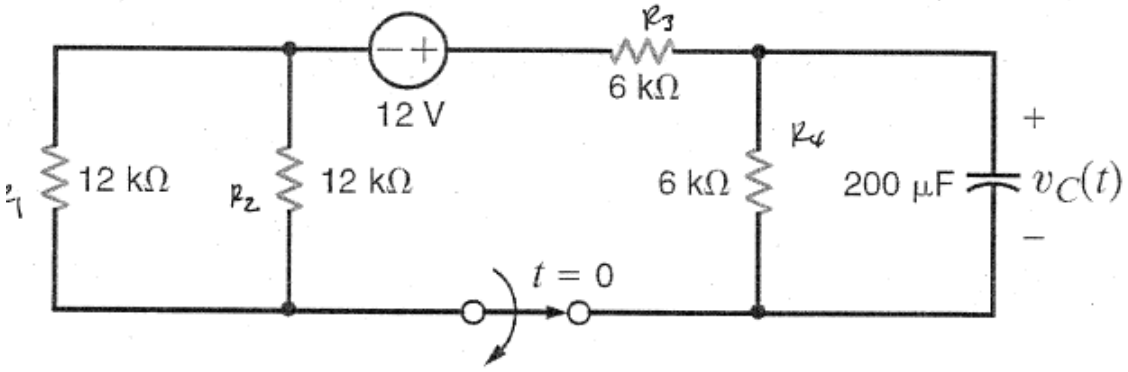


Figure P7.6

Use the differential equation approach to find $v_C(t)$ for $t > 0$ in the circuit in Fig. P7.4.



7.5 Use the differential equation approach to find $v_C(t)$ for $t > 0$ in the circuit in Fig. P7.5 and plot the response including the time interval just prior to opening the switch. CS



7.4 Use the differential equation approach to find $v_C(t)$ for $t > 0$ in the circuit in Fig. P7.4.

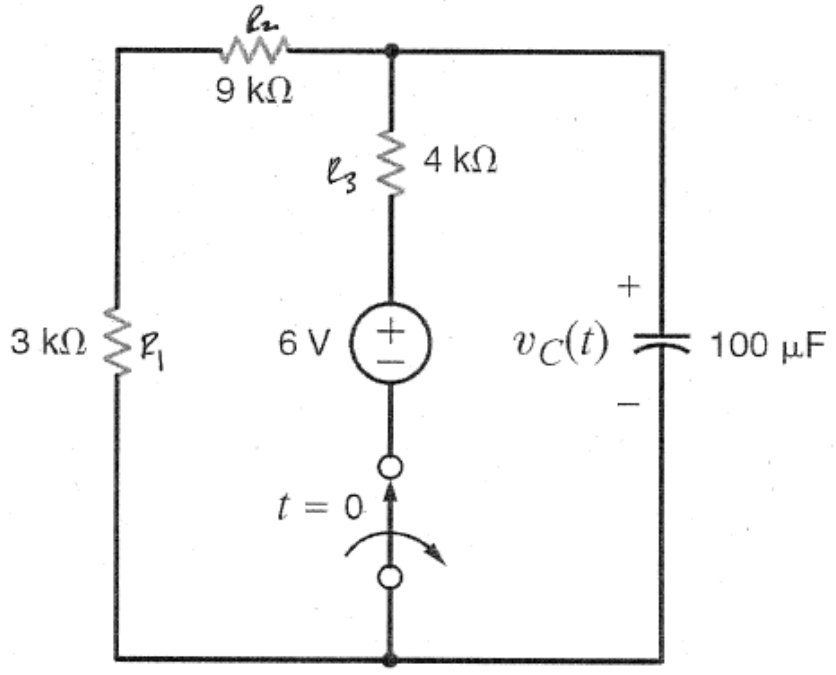


Figure P7.4

7.5 Use the differential equation approach to find $v_C(t)$ for $t > 0$ in the circuit in Fig. P7.5 and plot the response including the time interval just prior to opening the switch. CS

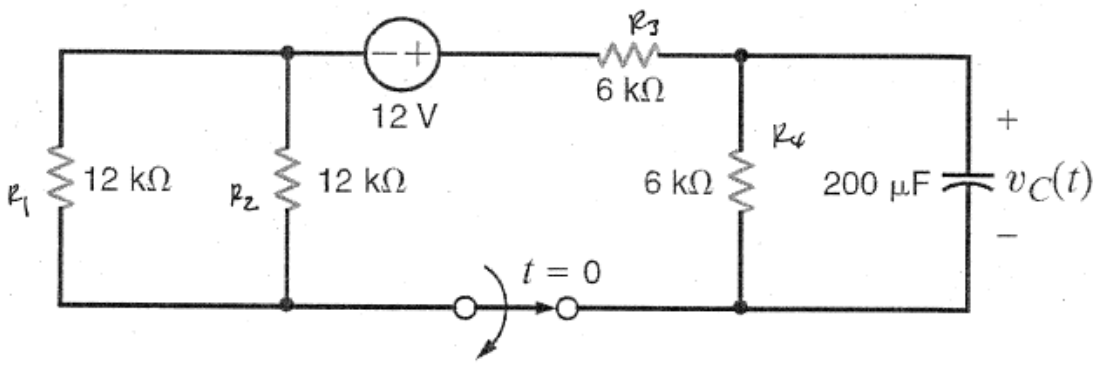


Figure P7.5

7.80 For the underdamped circuit shown in Fig. P7.80, determine the voltage $v(t)$ if the initial conditions on the storage elements are $i_L(0) = 1$ A and $v_C(0) = 10$ V. CS

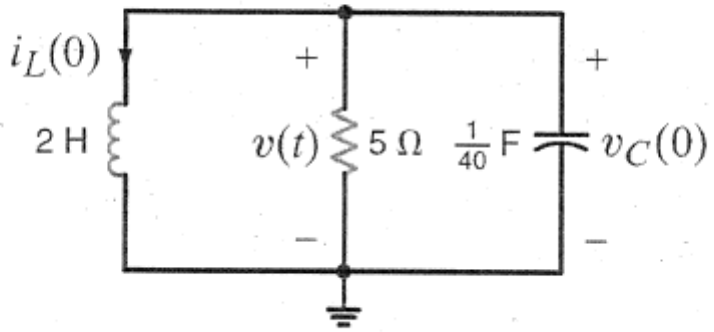


Figure P7.80

7.84 Find $v_C(t)$ for $t > 0$ in the circuit in Fig. P7.84 if $v_C(0) = 0$.

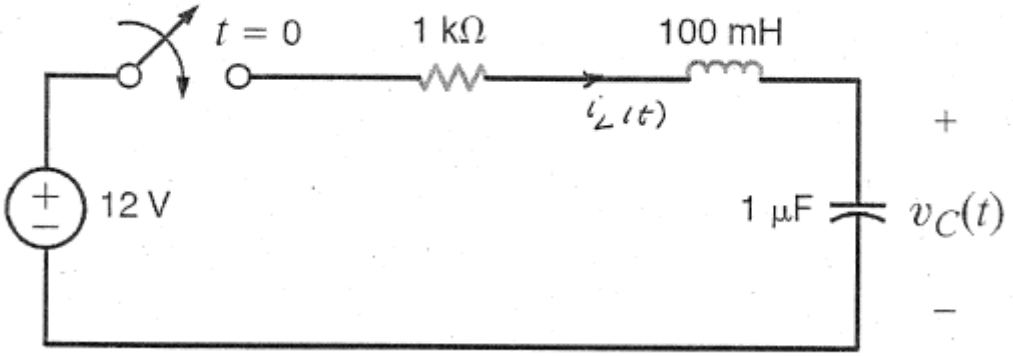


Figure P7.84