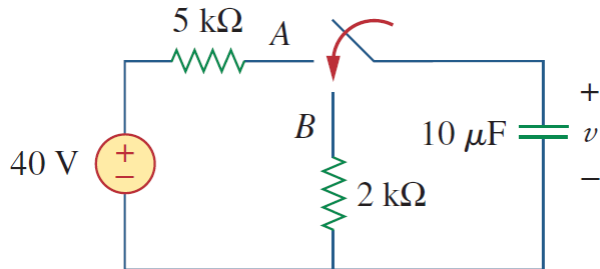
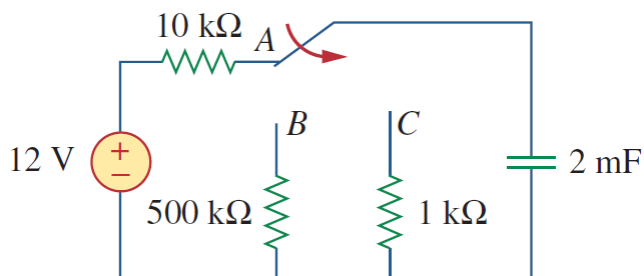


## Assignment problems: Chapter 7

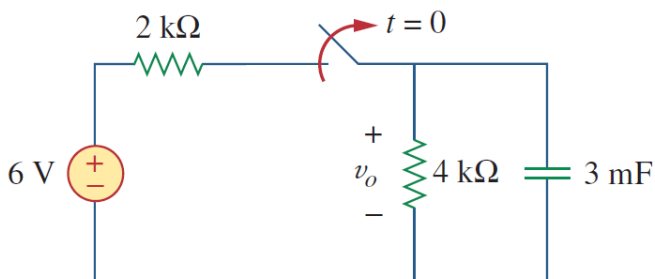
**7.4** The switch in the following circuit has been in position A for a long time. Assume the switch moves instantaneously from A to B at  $t=0$ . Find  $v$  for  $t>0$ .



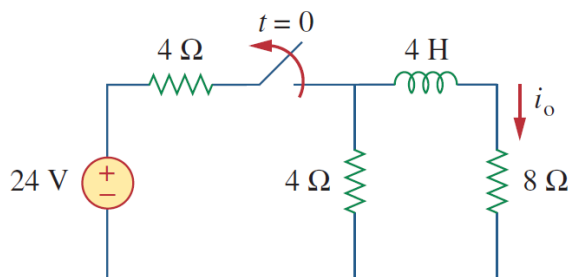
**7.7:** Assume that the switch in the following circuit has been in position A for a long time and is moved to position B at  $t=0$ . Then at  $t = 1$  second, the switch moves from B to C. Find  $v_C(t)$  for  $t \geq 0$ .



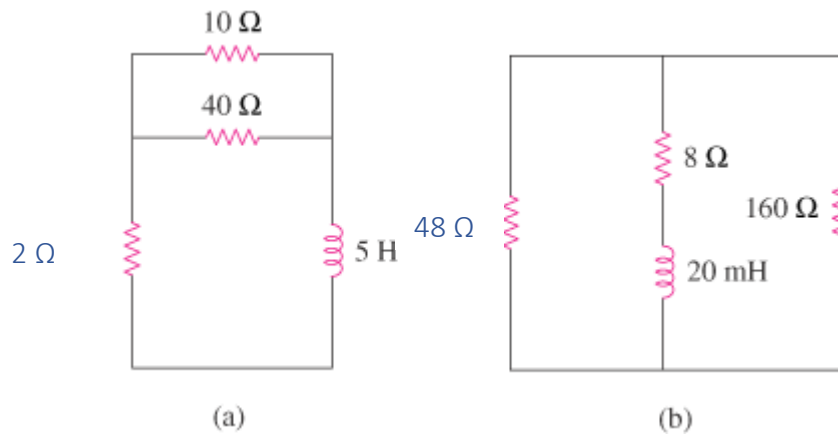
**7.9:** The switch in the following circuit opens at  $t=0$ . Find  $v_o$  for  $t > 0$ .



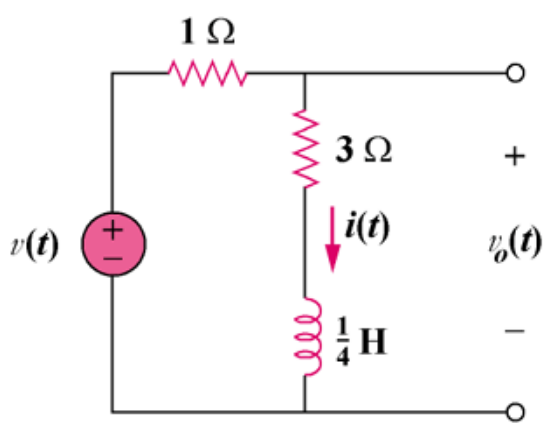
**7.11:** For the following circuit, find  $i_o$  for  $t > 0$ .



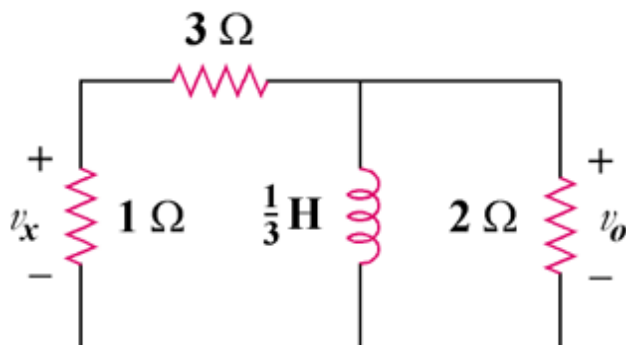
**7.15:** Find the time constant for each of the circuits.



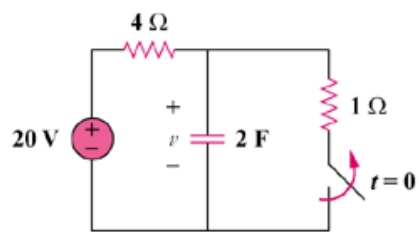
**7.17:** Consider the following circuit, Find  $v_o(t)$  if  $i(0) = 6\ \text{A}$  and  $v(t) = 0$ .



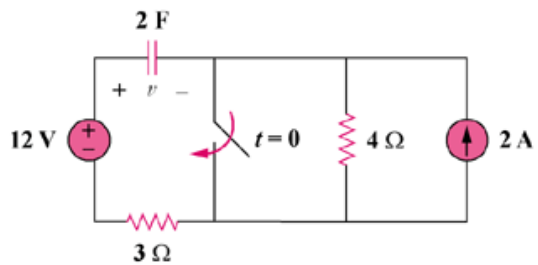
**7.23:** Consider the circuit below. Given that  $v_o(0) = 10\ \text{V}$ , find  $v_o$  and  $v_x$  for  $t > 0$ .



**7.39:** Calculate the capacitor voltage for  $t < 0$  and  $t > 0$  for each of the circuits shown below.

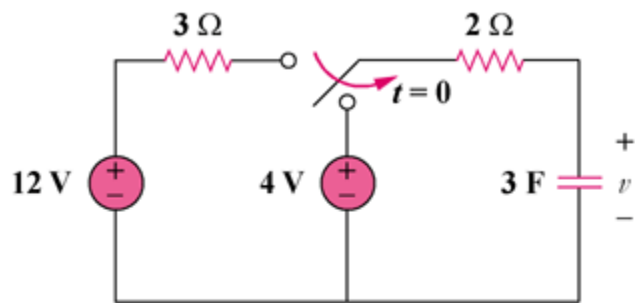


(a)

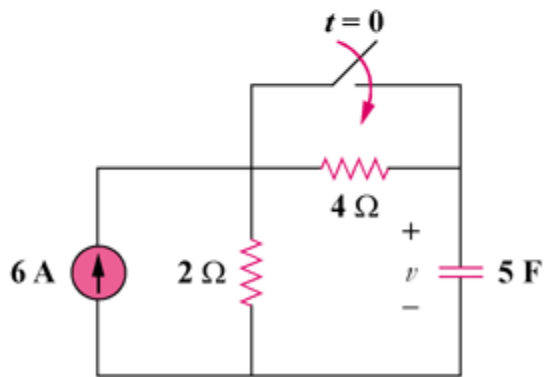


(b)

**7.40:** Find the capacitor voltage for  $t < 0$  and  $t > 0$  for each of the following circuits.

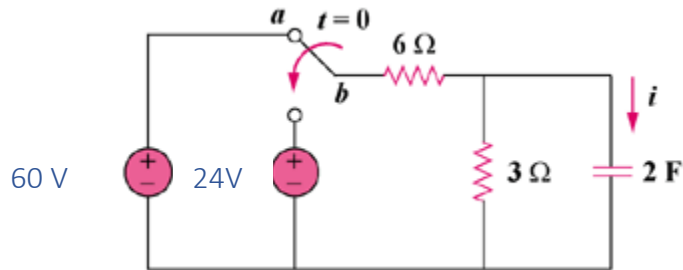


(a)

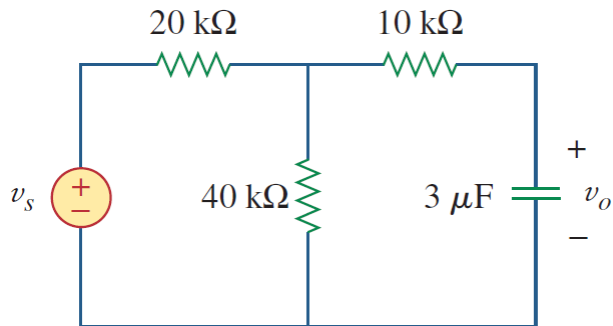


(b)

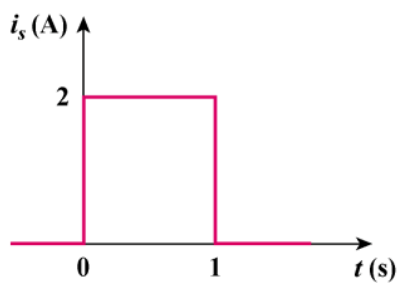
**7.44:** The switch in the circuit below has been in position  $a$  for a long time. At  $t = 0$ , it moves to position  $b$ . Calculate  $i(t)$  for all  $t > 0$ .



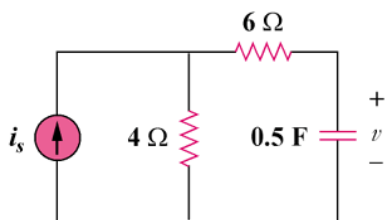
**7.45:** Find  $v_o$  in the circuit below when  $v_s = 30u(t)$  V. Assume that  $v_o(0) = 5$  V.



**7.49:** If the waveform shown below in (a) is applied to the circuit (b), find  $v(t)$ . Assume  $v(0) = 0$ .

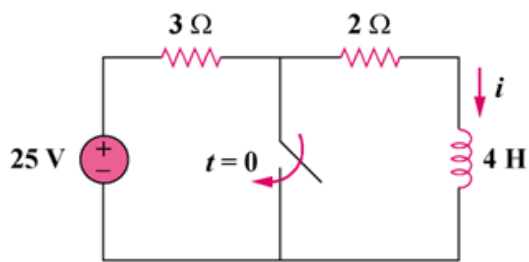


(a)

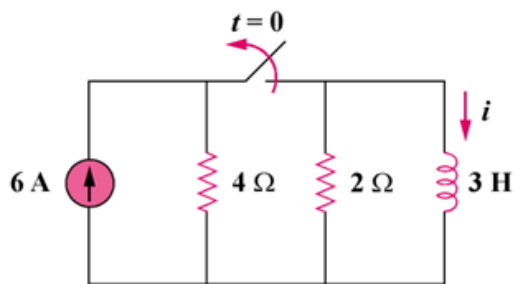


(b)

**7.53:** Determine the inductor current  $i(t)$  for both  $t < 0$  and  $t > 0$  for each of the following circuits

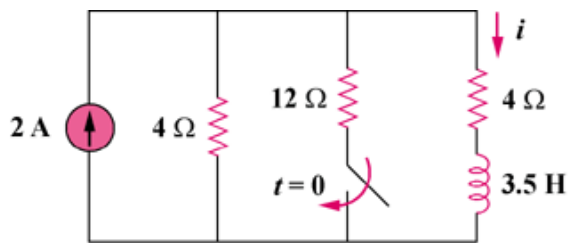


(a)

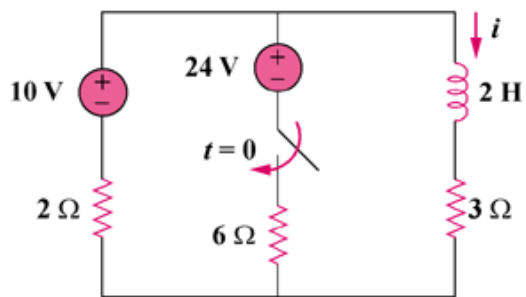


(b)

**7.54:** Obtain the inductor current for both  $t < 0$  and  $t > 0$  in each of the following circuits

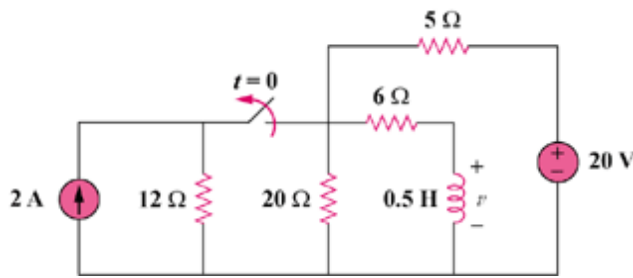


(a)

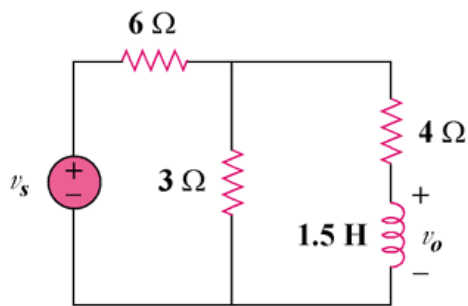


(b)

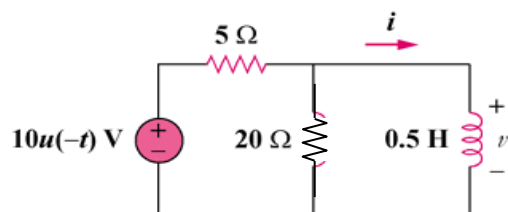
**7.56:** For the network shown below, find  $v(t)$  for  $t > 0$ .



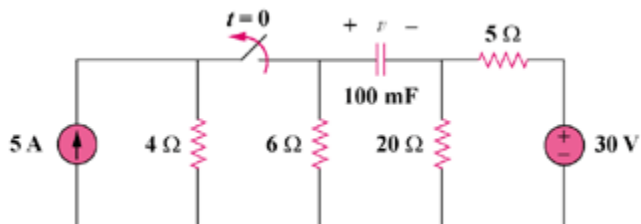
**7.59:** Determine the step response  $v_o(t)$  to  $v_s = 18 u(t)$  V in the circuit shown below.



**7.63:** Obtain  $v(t)$  and  $i(t)$  in the circuit shown below.



**7.77:** The switch in the circuit below opens at  $t = 0$ . Determine  $v(t)$  for  $t > 0$ .



**7.79:** In the circuit shown below, the switch has been in position 1 for a long time but moves instantaneously to position 2 at  $t = 0$ . Determine  $i_0(t)$ .

