

14.27 Find $i_o(t)$, $t > 0$, in the network shown in Fig. P14.27.

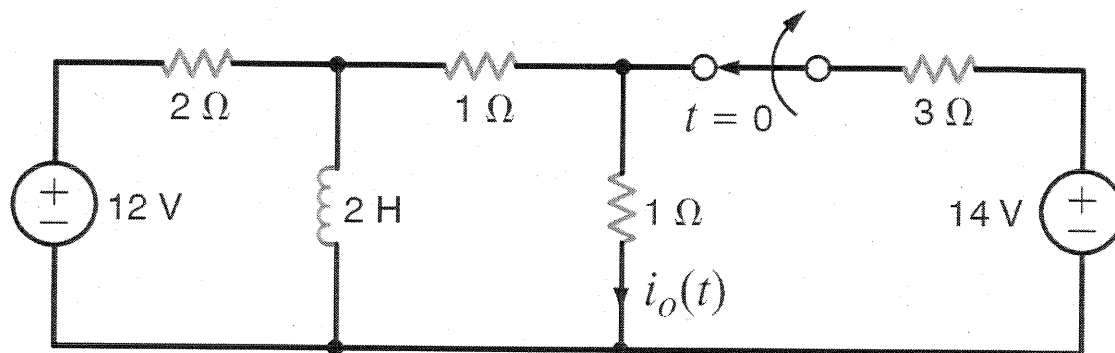
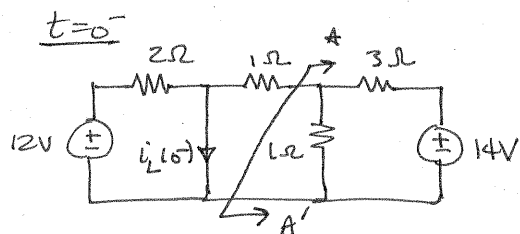
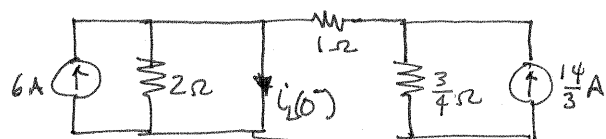


Figure P14.27

SOLUTION:

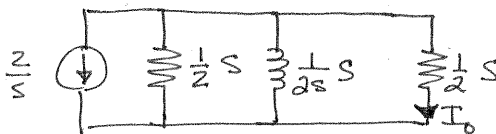
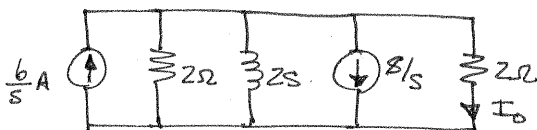
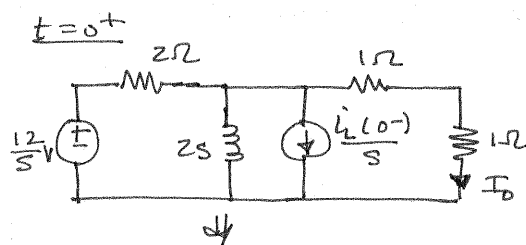


Use source transform & Norton's



By superposition:

$$i_L(0^-) = 6 + \frac{14}{3} \left[\frac{3/4}{1 + 3/4} \right] = 8 \text{ A}$$



$$I_0 = -\frac{2}{s} \left[\frac{1/2}{1/2 + 1/2 + 1/2s} \right] = \frac{-1}{s + 1/2}$$

$$i_o(t) = -e^{-t/2} u(t) \text{ A}$$