

14.32 Find $v_o(t)$, $t > 0$, in the network in Fig. P14.32.

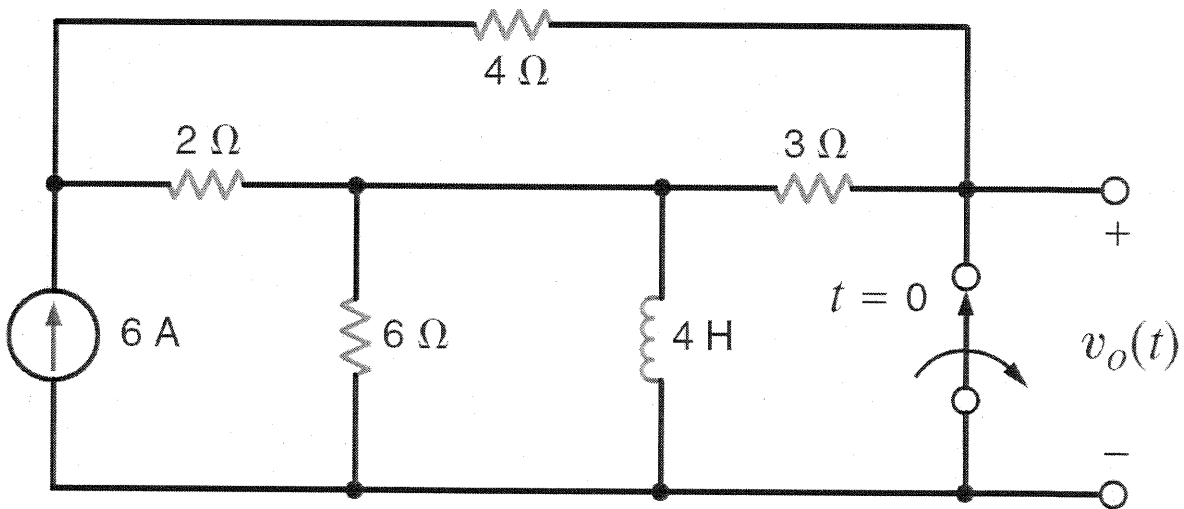
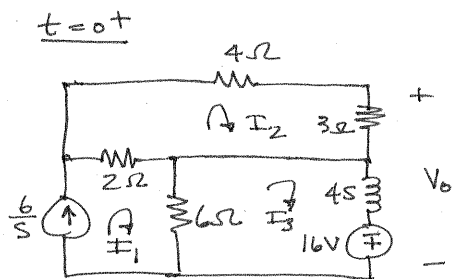
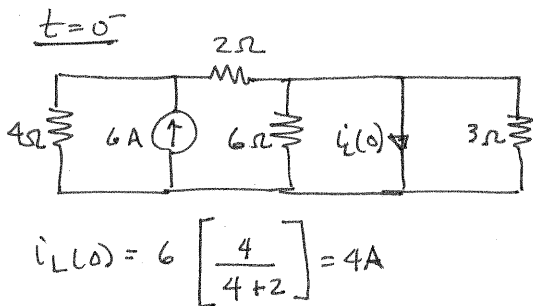


Figure P14.32

SOLUTION:



$$I_1 = 6/s \quad I_2(0) - 2I_1 = 0$$

$$16 = I_3(4s+6) - 6I_1$$

$$\Leftarrow \text{yields } I_2 = \frac{4}{3} \quad I_3 = \frac{8s+18}{s(2s+3)}$$

$$V_o = 3I_2 + 4sI_3 - 16$$

$$V_o = \frac{4}{s} + \frac{32s+72}{2s+3} - 16$$

$$V_o = \frac{16s+6}{s(s+1.5)} = \frac{4}{s} + \frac{12}{s+1.5} \Rightarrow$$

$$v_o(t) = \left[4 + 12e^{-1.5t} \right] u(t) \text{ V}$$