14.35 Find $v_o(t)$, for $t > 0$, in the network in Fig. P14.35.

CS

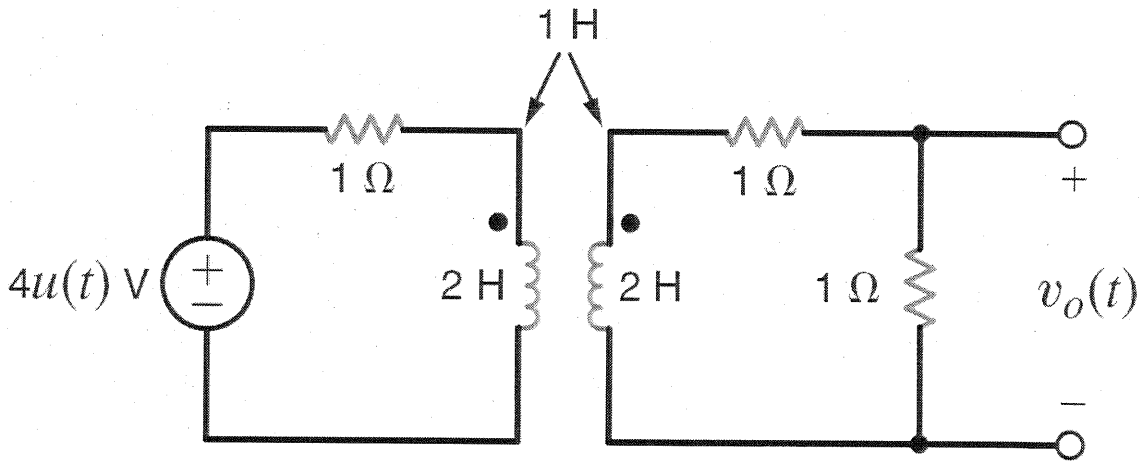
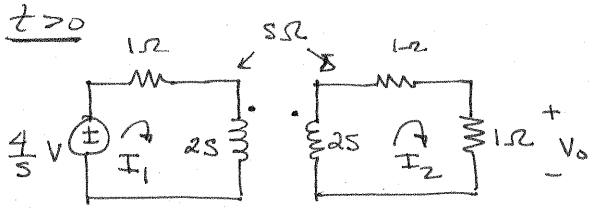


Figure P14.35

SOLUTION: $t=0^-$: no excitation ⇒ ∅ initial conditions

$t>0$



$$\frac{4}{s} = I_1(2s+1) - sI_2$$

$$0 = -sI_1 + I_2(2s+2)$$

or, $I_1 = I_2(2s+2)/s$

yields, $I_2 = \dfrac{4/3}{s^2+2s+2/3}$ ⇐

$$V_o = (1)I_2 = \frac{4/3}{(s+0.42)(s+1.58)}$$

$$V_o = \frac{1.15}{s+0.42} - \frac{1.15}{s+1.58}$$

$$v_o(t) = 1.15\left[e^{-0.42t} - e^{-1.58t}\right]u(t)\ \text{V}$$