

14.13 Use mesh equations to find $v_o(t)$, $t > 0$, in the network in Fig. P14.13. **CS**

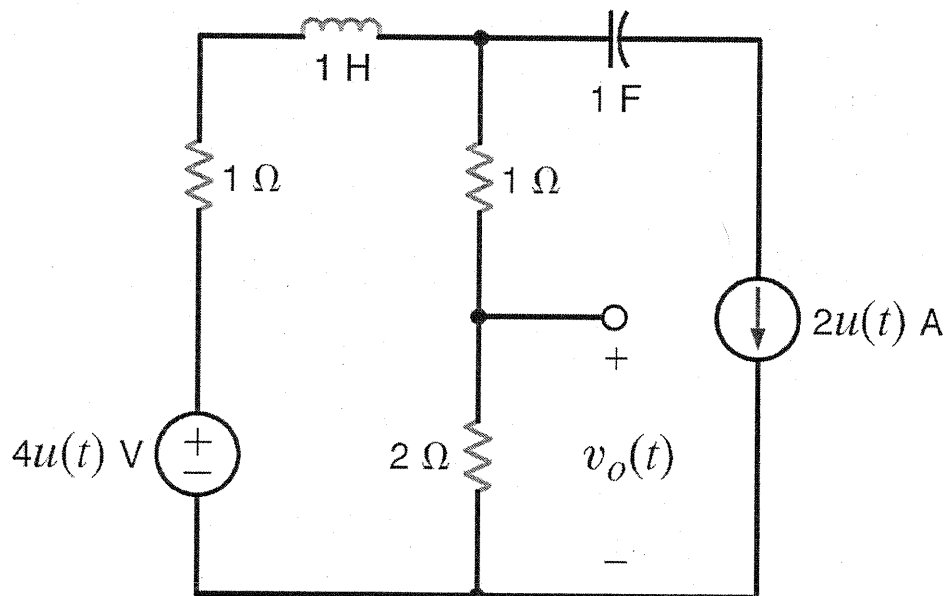
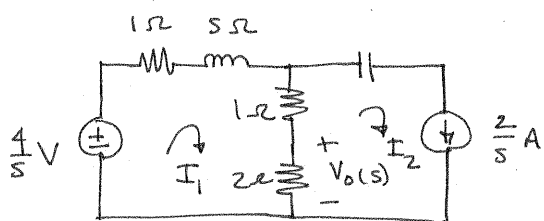


Figure P14.13

SOLUTION:



$$I_1 = \frac{10}{s(s+4)}$$

$$\frac{4}{s} = I_1(s+4) - 3I_2 \quad I_2 = \frac{2}{s}$$

$$\frac{4}{s} = I_1(s+4) - \frac{6}{s}$$

$$\frac{10}{s} = I_1(s+4)$$



$$V_o = 2(I_1 - I_2) = 2 \left[\frac{10}{s(s+4)} - \frac{2}{s} \right] = \frac{4(-s+1)}{s(s+4)} = \frac{1}{s} - \frac{s}{s+4}$$

$$v_o(t) = [1 - se^{-4t}]u(t) \text{ V}$$