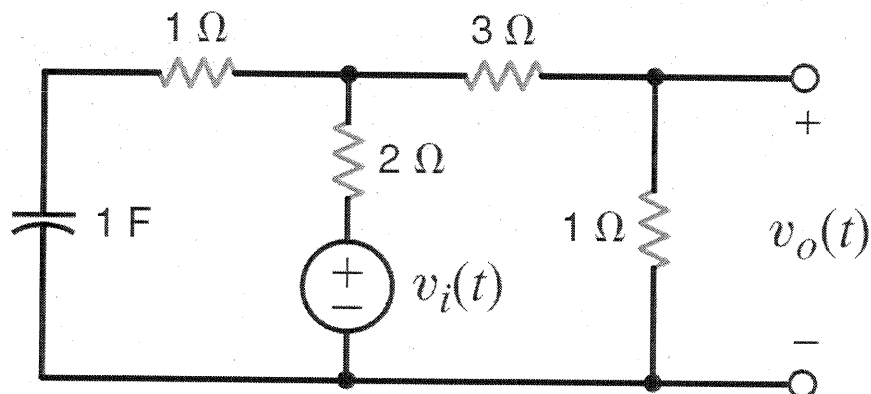
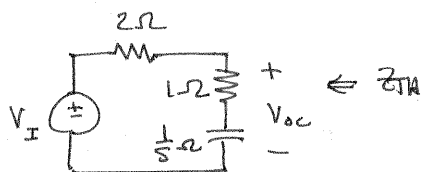


**14.45** Find the transfer function  $V_o(s)/V_i(s)$  for the network shown in Fig. P14.45. **CS**



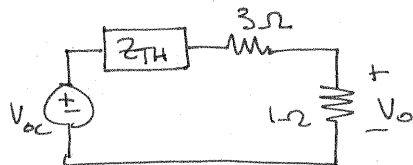
**Figure P14.45**

**SOLUTION:** *Use Thevenin eq*



$$V_{OC} = \frac{V_I (1 + 1/s)}{3 + 1/s} = \frac{V_I (s+1)}{3s+1}$$

$$Z_{TH} = \frac{2(1 + 1/s)}{3 + 1/s} = \frac{2(s+1)}{3s+1}$$



$$V_o = V_{OC} \left[ \frac{1}{4 + Z_{TH}} \right] = \frac{V_I (s+1)}{3s+1} \left( \frac{3s+1}{4(3s+1) + 2(s+1)} \right)$$

$$V_o = V_I \left[ \frac{s+1}{14s+6} \right]$$

$$\boxed{\frac{V_o}{V_I} = \frac{s+1}{14s+6}}$$